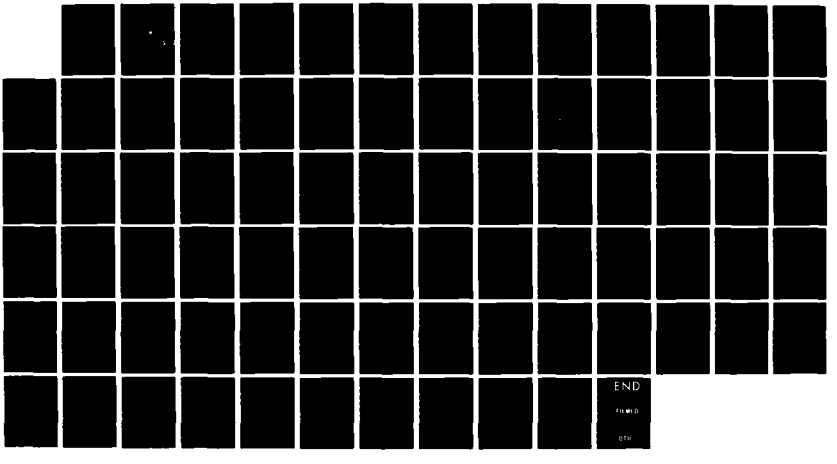
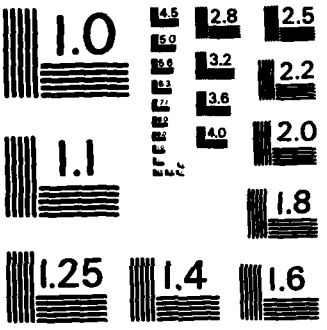
AD-A159 709 MIZLANT 81 DATA REPORT RESULTS OF AN OCEANOGRAPHIC CRUISE TO THE GREENLAN..(U) NAVAL POSTGRADUATE SCHOOL MONTEREY CA R H BOURKE ET AL. AUG 85 NPS-68-85-020 1/1

UNCLASSIFIED F/G 8/10 NL





MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

NPS 68-85-020

NAVAL POSTGRADUATE SCHOOL

Monterey, California

MIZLANT 81 DATA REPORT

RESULTS OF AN OCEANOGRAPHIC CRUISE
TO THE GREENLAND SEA
OCTOBER - NOVEMBER 1981

BY

Robert H. Bourke
and
Robert G. Paquette

August 1985

Approved for public release; distribution unlimited

Prepared for:
Director, Arctic Submarine Laboratory
Naval Ocean Systems Center
San Diego, CA 92152

NAVAL POSTGRADUATE SCHOOL
Monterey, CA 93943-5100

Rear Admiral R.H. Shumaker
Superintendent

David A. Shrady
Provost

The work reported herein was supported in part by the Arctic Submarine Laboratory, Naval Ocean Systems Center, San Diego, CA under several Work Orders, the latest of which is N 66001-84-WR00376.

This report was prepared by:

ROBERT H. BOURKE
Assoc. Prof. of Oceanography

ROBERT G. PAQUETTE
Prof. Oceanography

Reviewed by:

CHRISTOPHER N.K. MOOERS, Chariman
Department of Oceanography

Released by:

JOHN N. DYER
Dean of Science and Engineering

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM
1. REPORT NUMBER NPS 68-85-020	2. GOVT ACCESSION NO. AD-A159209	3. RECIPIENT'S CATALOG NUMBER
4. TITLE (and Subtitle) MIZLANT 81 DATA REPORT, RESULTS OF AN OCEANOGRAPHIC CRUISE TO THE GREENLAND SEA, OCTOBER-NOVEMBER 1981.		5. TYPE OF REPORT & PERIOD COVERED INTERIM 1 OCT 80 - 31 DEC 81 6. PERFORMING ORG. REPORT NUMBER NPS 68-85-020
7. AUTHOR(s) ROBERT H. BOURKE AND ROBERT G. PAQUETTE		8. CONTRACT OR GRANT NUMBER(s) N66001-84-WR-00376
9. PERFORMING ORGANIZATION NAME AND ADDRESS NAVAL POSTGRADUATE SCHOOL MONTEREY, CA 93943-5100		10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 63522N
11. CONTROLLING OFFICE NAME AND ADDRESS ARCTIC SUBMARINE LABORATORY CODE 54, BLDG. 371, NAVAL OCEAN SYSTEMS CENTER SAN DIEGO, CA 92152		12. REPORT DATE AUGUST 85 13. NUMBER OF PAGES 74
14. MONITORING AGENCY NAME & ADDRESS(if different from Controlling Office)		15. SECURITY CLASS. (of this report) UNCLASSIFIED 15a. DECLASSIFICATION/DOWNGRADING SCHEDULE

16. DISTRIBUTION STATEMENT (of this Report)

APPROVED FOR PUBLIC RELEASE; DISTRIBUTION UNLIMITED

17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)

18. SUPPLEMENTARY NOTES

19. KEY WORDS (Continue on reverse side if necessary and identify by block number)

EAST GREENLAND CURRENT
ICEBREAKER
NORTHWIND
GREENLAND SEA
MIZEX
EAST GREENLAND POLAR FRONT
MARGINAL ICE ZONE

20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This report presents plots of property profiles for each of the 122 oceanographic stations occupied by the U.S. Coast Guard Icebreaker over the continental shelf and slope waters off the east coast of Greenland in October & November 1981. A Neil Brown Mark III CTD was used to obtain temperature and salinity profiles to the sea floor in shallow water and at least to 600m in deeper water. In addition to temperature and salinity profiles, plots of sound speed and density (sigma-t) are shown.

DD FORM 1 JAN 73 1473 EDITION OF 1 NOV 65 IS OBSOLETE

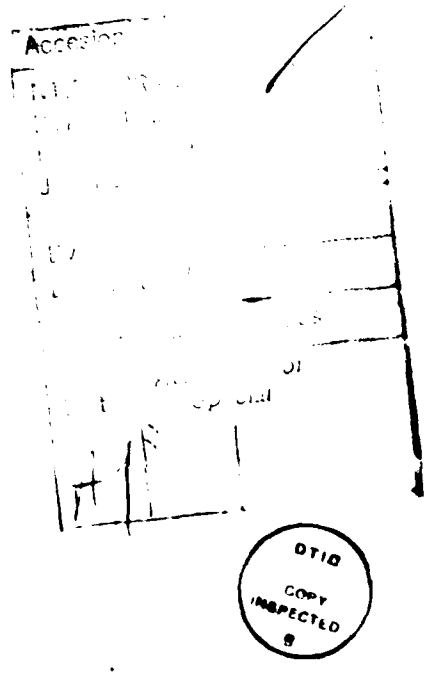
S/N 0102-LF-014-6601

UNCLASSIFIED

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

TABLE OF CONTENTS

		PAGE
I.	INTRODUCTION	1
II.	MORE DETAILS OF THE CRUISE	2
III.	MEASUREMENTS	3
IV.	REFERENCES	5
	APPENDIX A	6
	APPENDIX B	16
	DISTRIBUTION	67



MIZLANT 81 DATA REPORT

RESULTS OF AN OCEANOGRAPHIC CRUISE TO THE GREENLAND SEA

OCTOBER-NOVEMBER 1981

by

Robert H. Bourke and Robert G. Paquette

I. INTRODUCTION

This report presents the oceanographic data acquired during the cruise of the U. S. Coast Guard ice breaker NORTHWIND (WAGB-282) to the northern part of the East Greenalnd Polar Front (EGPF) in the Greenland Sea during October and November 1981. This cruise has been designated Arctic East 1981 (AE81), but for continuity with past cruises is also termed MIZLANT 81. The cruise had as its primary objective a close examination of the EGPF between about 75° and 80°N. This was one of the rare sets of oceanographic observations in this area in autumn and the first done with close-spaced stations and a modern, high-resolution CTD. The NORTHWIND covered over 1600 km of track within the survey area. One hundred twenty-two CTD stations were occupied at spacings varying from 5 to 30 km. These stations were supplemented by 123 not always successful XBT drops. The latter were used between stations and in the otherwise unsampled portion of the track between 69°-27'N and the beginning of regular stations at

74°-51.5°N. These XBT results were sent to the NAVOCEANO representative to COMSUBDEVRON TWELVE, Naval Submarine Base, New London, Groton, Connecticutt. A few XBT's were used to extend CTD lines.

The EGPF was found strongly delineated by the Polar Water-Atlantic Intermediate Water (PW-AIW) contrast. It was made particularly striking by the Return Atlantic Current (RAC), a core of warm southward-flowing AIW submerged beneath the PW and penetrating, somewhat modified, onto the shelf. The RAC contained considerable thermal finestructure in most places. The eastern edge of the EGPF, over the RAC, was marked by a strong geostrophic jet.

Previous reportings of cruise results were made by Paquette (1982), Perdue (1982) and, in a scientific paper, by Paquette, Bourke, Newton and Perdue (1985).

II. MORE DETAILS OF THE CRUISE

The scientific party boarded NORTHWIND between 9 and 10 October 1981 in Reykjavik, Iceland. The members of the scientific party and their affiliations were:

Dr. M. Allan Beal, Arctic Submarine Laboratory, NOSC San Diego, California, Chief Scientist.

Dr. Robert H. Bourke, Naval Postgraduate School, at that time on sabbatical leave at Scott Polar Research Institute, Cambridge University, Cambridge, England.

Dr. John L. Newton, Science Applications, Inc., La Jolla, California.

LT William F. Perdue, Graduate Student,

Naval Postgraduate School, Monterey, California:
Mr. Jerrold G. Norton, Naval Postgraduate School.
Mr. Kim O. McCoy, Naval Postgraduate School.

The cruise track and locations of CTD stations are indicated in Figure 1. Sampling commenced on 17 October and terminated four weeks later on 14 November. A listing of the locations of all CTD stations and ancillary climatological data at each station is shown in Appendix A.

Wind speeds were generally low until 29 October, after which they were generally above 15 knots, reaching 35 knots on 10-11 November. Thereafter they became moderate, with some periods of speed below 10 knots. Air temperatures were well below freezing, especially during the latter half of the cruise.

All of the sampling was done from the ship. Darkness and poor visibility prevented using the ship's helicopters for oceanographic measurements. Adequate visibility and the need for helicopter-based sampling never coincided. However, the helicopters were of considerable utility in ice reconnaissance.

III. MEASUREMENTS

The primary oceanographic instrument was the Neil Brown Instrument Systems (NBIS) Mark III CTD. Data were collected, stored, and displayed using a Hewlett-Packard

9835B computer and 9872A x-y flat-bed plotter. As in the past, an extension was bolted on to the protective frame of the CTD; the lower part of the frame and the extension were covered with coarse wire mesh to protect the sensors from contact with the bottom and with ice. No apparent deterioration in sensor accuracy or response have been noted using this technique.

Some CTD difficulties were experienced during the coldest weather. It was not possible to keep the instrument warm enough to prevent ice formation on the sensors and occasional complete failure to operate. These problems were cured by several minutes "soaking" and up-and-down flushing of the instrument in the sea before each lowering.

The temperature and conductivity sensors of the NBIS CTD were calibrated at NPS prior to the cruise. The calibrated pressure sensor had a 1600 dbar range. The sampling rate of the CTD was set to about 0.4 m of depth per sample. Checking of the temperature and conductivity sensors during the cruise was done by means of a single Nansen bottle and reversing thermometers placed immediately above the CTD. Sample salinities were determined with a deck salinometer. Because of breakage of all but 4 vials of standard water only 17 of the salinity comparisons were reliable. The average deviations of the CTD from reversing bottle results were approximately +0.004°C and +0.006

o/oo in salinity, about the limit of error for such measurements; therefore, no corrections were applied.

The plots of properties shown in Appendix B are from data which has been edited, despiked and smoothed with a centered 5-point running mean.

IV. REFERENCES

Paquette, Robert G., Cruise Report, USCGC NORTHWIND 1981, October- November 1981, Naval Postgraduate School, Monterey, California, Informal Report, 12 February 1982, 13 pp.

Perdue, William F., Oceanographic Investigation of the East Greenland Polar Front in Autumn, Master's Thesis, Naval Postgraduate School, Monterey, California, March 1982, 80 pp.

Paquette, Robert G., Robert H. Bourke, John L. Newton and William F. Perdue, The East Greenland Polar Front in Autumn, J. Geophys. Res. 90 (C3), 4866-4882 (May 20, 1985).

APPENDIX A

Explanation of Heading Codes

The heading of the printed output uses the coding from NODC Publication M-2, August 1964, with a few exceptions. Heading entries which are not self-explanatory are as follows: MSQ is the Marsden square, and DPTH is the water depth in meters. Wave source direction (WVD) is in tens of degrees, but the direction 00 indicates calm seas due to ice dampening. The significant wave height is coded by Table 10 (code - 2 = height in meters). Wind speed, V, is coded as Beaufort force, Table 17. The barometer is in millibars, less 1000 if more than 3 digits; wet and dry bulb temperatures are in degrees C. The present weather is from Table 21 with cloud type and amount from Tables 25 and 26, respectively. The combination 4 X 9 indicates that clouds cannot be observed usually because of fog conditions. The visibility is from Table 27 which is roughly in powers of two with code 4 = 1-2 km. The ice concentration, ICE, is in tenths; amounts less than one tenth are preceded by a minus sign and indicate concentrations in powers of ten, e.g., 10^{-4} = -4.

The entry, NAV, is a code to identify the accuracy of each station position based upon the navigation system used. Code 1 indicates a position determined by visual sightings, radar or by navigation satellite; Code 2 a position determined by Omega or Loran; and Code 3 a

position determined by dead reckoning.

The heading data are listed sequentially with increasing station number. Because of data recovery problems five stations are out of order: 12, 21, 27, 48 and 71. These are listed at the end.

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N74-51.5	W010-11.9	254	10	17	81	08.8	001-	3110	1	-6	07	1	26	2	002	-07.0	-07.7	1	6	5	7
31	NW	N74-51.5	W010-11.9	254	10	17	81	10.8	002-	3110	1	-6	07	1	26	2	002	-07.0	-07.7	1	6	5	7
31	NW	N75-02.6	W010-47.9	254	10	17	81	15.9	003-	2708	1	3	07	0	23	3	002	-07.7	-08.6	1	6	1	7
31	NW	N75-08.0	W011-08.2	254	10	17	81	20.4	004-		1		00	0	00	0	003	-12.2	-12.9	0		0	7
31	NW	N75-15.6	W010-05.0	254	10	18	81	03.3	005-	2743	1	7	00	0	35	3	004	-08.6	-09.2	0		0	7
31	NW	N75-24.0	W009-03.3	253	10	18	81	08.2	006-	2872	1	-2	00	0	34	3	006	-05.0	-05.2	0		0	7
31	NW	N75-35.6	W007-45.1	253	10	18	81	11.5	007-	3068	1	8	00	0	03	6	005	-01.2	-02.0	1	6	4	7
31	NW	N75-49.1	W006-52.0	253	10	18	81	14.8	008-	2780	1	0	04	2	04	4	006	-00.9	-02.1	1	6	6	7
31	NW	N76-01.2	W006-00.3	253	10	18	81	17.2	009-		1	0	04	3	04	6	007	-00.3	-00.3	2	6	8	7
31	NW	N76-11.6	W006-46.0	253	10	18	81	19.6	010-	2438	1	-4	00	0	03	5	006	-00.3	-00.3	2	6	7	7
31	NW	N76-21.5	W007-32.2	253	10	18	81	22.4	011-	1268	1	5	00	0			008						
31	NW	N76-17.1	W007-23.0	253	10	19	81	07.7	013-	1380	1	5	00	0	35	6	008	-06.8	-08.2	1	6	8	6
31	NW	N76-19.3	W007-36.2	253	10	19	81	09.2	014-	1242	1	8	00	0	36	6	007	-07.2	-07.5	1	6	8	7
31	NW	N76-26.0	W007-47.0	253	10	19	81	13.8	015-	0684	1	8	00	0	35	4	007	-07.8	-08.3	1	6	8	6
31	NW	N76-33.0	W008-07.2	253	10	19	81	20.4	016-	0309	1	10	00	0	06	5	010	-04.3	-04.4	7	7	9	1
31	NW	N76-37.9	W008-14.9	253	10	20	81	05.0	017-	0320	1	10	00	0	35	6	012	-06.6	-06.6	7	7	9	2
31	NW	N76-46.1	W008-23.3	253	10	20	81	14.7	018-	0350	1	10	00	0	30	2	012	-08.9	-09.2	2	7	8	6
31	NW	N76-49.2	W008-49.8	253	10	20	81	18.8	019-	0368	1	10	00	0	00	0	011	-08.0	-08.6	1	7	7	7
31	NW	N76-49.2	W008-49.8	253	10	20	81	19.0	020-	0368	1	10	00	0	00	0	011	-08.1	-08.6	1	7	7	7
31	NW	N76-49.3	W008-55.3	253	10	21	81	15.8	022- 1	0350	1	10	00	0	00	0	012	-13.0	-13.2	1	7	1	7
31	NW	N76-49.2	W008-55.0	253	10	21	81	17.0	022- 2	0350	1	10	00	0	00	0	011			1	7	1	7
31	NW	N76-49.0	W008-55.2	253	10	21	81	18.1	022- 3	0359	1	10	00	0	04	2	010	-15.6	-15.6	0		0	7
31	NW	N76-48.9	W008-55.1	253	10	21	81	19.1	022- 4	0359	3	10	00	0	04	2	010	-15.9	-15.9	7	7		6
31	NW	N76-48.7	W008-55.0	253	10	21	81	20.1	022- 5	0350	3	10	00	0	00	0	009	-14.6	-14.4	0		0	7

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N76-48.6	W008-55.4	253	10	21	81	21.1	022- 6	0332	1	10	00	0	13	2	008	-14.2	-14.3	0		0	7
31	NW	N76-48.6	W008-55.2	253	10	21	81	22.0	022- 7	0339	3	10	00	0	15	2	007	-10.6	-10.8	0		0	7
31	NW	N76-48.6	W008-55.3	253	10	21	81	23.0	022- 8	0350	1	10	00	0	16	2	008	-12.0	-12.0	1	7	3	7
31	NW	N76-48.6	W008-55.1	253	10	22	81	00.1	022- 9	0341	1	10	00	0	13	3	007	-12.0	-12.0	1	7	1	7
31	NW	N76-47.4	W008-57.8	253	10	22	81	02.0	022-10	0340	1	10	00	0									
31	NW	N76-47.4	W008-57.8	253	10	22	81	08.8	022-10	0350	1	10	00	0									
31	NW	N76-47.4	W008-57.8	253	10	23	81	09.3	023- 1	0335	1	10	00	0	00	0	998	-01.5	-01.5	7	7		6
31	NW	N76-47.3	W008-57.6	253	10	23	81	10.2	023- 2	0335	1	10	00	0	00	0	998			7	7		5
31	NW	N76-47.0	W008-57.7	253	10	23	81	11.3	023- 3	0329	1	10	00	0	00	0	998	-01.1	-01.1	7	7		5
31	NW	N76-46.8	W008-57.9	253	10	23	81	12.3	023- 4	0323	3	10	00	0	11	2	998	-00.5	-00.3	7	7	9	5
31	NW	N76-46.5	W008-58.0	253	10	23	81	13.3	023- 5	0323	3	10	00	0	00	0	998	-00.4	-00.3	2	7	8	5
31	NW	N76-46.4	W008-58.6	253	10	23	81	14.3	023- 6	0325	1	10	00	0	00	0	998	-00.2	-00.3	2	7	8	5
31	NW	N76-46.3	W008-59.3	253	10	23	81	15.3	023- 7	0324	1	10	00	0	00	0	998	-00.0	-00.2	7	7	8	5
31	NW	N76-46.3	W008-59.9	253	10	23	81	16.3	023- 8	0333	1	10	00	0	00	0	999	-00.0	-00.2	7	7	8	5
31	NW	N76-46.2	W009-00.0	253	10	23	81	17.3	023- 9	0333	3	10	00	0	00	0	998	00.0	00.0	7	7	8	5
31	NW	N76-46.2	W009-00.0	253	10	23	81	18.3	023-10	0359	1	10	00	0	00	0	998	00.0	00.0	7	X	9	5
31	NW	N76-46.2	W009-00.0	253	10	23	81	19.3	023-11	0359	3	10	00	0	00	0	998	01.0	01.0	7	X	9	5
31	NW	N76-45.9	W009-00.9	253	10	23	81	20.3	023-12	0368	1	10	00	0	00	0	998	00.0	00.0	2	7	8	5
31	NW	N76-45.7	W009-01.6	253	10	23	81	21.3	023-13	0368	1	10	00	0	00	0	998	00.0	00.0	2	7	8	5
31	NW	N76-45.6	W009-01.3	253	10	23	81	22.3	023-14	0337	1	10	00	0	00	0	998	00.0	00.0	2	7	8	5
31	NW	N76-45.5	W009-01.5	253	10	23	81	23.3	023-15	0333	1	10	00	0	00	0	998	00.0	00.0	2	7	8	5
31	NW	N76-45.4	W009-01.6	253	10	24	81	00.2	023-16	0328	1	10	00	0	10	1	998	00.2	-00.2	7	X	9	5
31	NW	N76-45.2	W009-01.9	253	10	24	81	01.2	023-17	0330	1	10	00	0	08	2	998			7	X	9	5
31	NW	N76-45.0	W009-02.6	253	10	24	81	02.1	023-18	0330	3	10	00	0	07	2	998			7	X	9	5

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N76-49.9	W009-03.4	253	10	24	81	03.2	023-19	0336	1	10	00	0	08	2	996	00.2	-00.2	7	X	9	5
31	NW	N76-44.9	W009-04.5	253	10	24	81	03.2	023-20	0340	1	10	00	0	06	2	997	00.2	-00.2	7	X	9	5
31	NW	N76-44.6	W009-05.3	253	10	24	81	05.1	023-21	0340	1	10	00	0	09	2	996			7	X	9	5
31	NW	N76-44.6	W009-05.6	253	10	24	81	06.1	023-22	0328	1	10	00	0	09	2	997			7	X	9	5
31	NW	N76-44.4	W009-07.3	253	10	24	81	07.2	023-23	0327	1	10	00	0	10	3	996			7	X	9	5
31	NW	N76-46.7	W008-25.3	253	10	24	81	19.1	024-	0350	1	10	00	0	17	3	998	-03.2	-03.2	7	X	9	5
31	NW	N76-35.9	W007-53.0	253	10	25	81	02.1	025-	0318	1	09	00	0	17	3	006	-03.0	-03.2	7	X	9	5
31	NW	N76-31.8	W007-40.6	253	10	25	81	04.6	026-	0318	1	09	00	0	17	3	007	-03.0	-03.2	7	X	9	5
31	NW	N76-31.8	W007-40.6	253	10	25	81	04.6	026-UP	0318	1	09	00	0	17	3	007	-03.0	-03.2	7	X	9	5
31	NW	N76-32.0	W006-50.6	253	10	25	81	10.0	028-	1010	1	08	00	0	09	3	008	-01.0	-01.0	7	X	9	5
31	NW	N76-29.9	W006-27.1	253	10	25	81	13.5	029-	1718	1	05	00	0	11	3	009	00.0	00.0	4	X	9	1
31	NW	N76-28.5	W006-20.8	253	10	25	81	15.1	030-	1880	1	0	12	3	17	3	009	-01.1	-01.5	4		0	3
31	NW	N76-25.6	W005-43.7	253	10	25	81	17.2	031-	2250	2	0	18	3	24	3	010	-02.8	-02.8	4	7	8	3
31	NW	N76-23.1	W005-21.3	253	10	25	81	19.2	032-	2348	2	0	18	3	24	3	010	-02.5	-02.5	4	7	8	4
31	NW	N76-34.5	W005-22.9	253	10	25	81	21.3	033-	2150	1	0	18	2	21	1	010	-03.0	-03.0	1	7	5	4
31	NW	N76-39.2	W005-34.7	253	10	25	81	23.6	034-	1970	1	0	18	2	26	3	010	-03.8	-03.8	4	X	9	6
31	NW	N76-45.3	W005-42.5	253	10	26	81	01.9	035-	1672	1	0	19	3	23	3	010	-03.8	-03.8	4	X	9	6
31	NW	N76-46.3	W005-42.9	253	10	26	81	03.5	036-	1618	3	0	20	3			010			4	X	9	6
31	NW	N76-51.4	W004-50.4	253	10	26	81	08.5	037-	1526	1	-2	21	3						4	X	9	6
31	NW	N76-50.7	W004-07.1	253	10	26	81	12.3	038-	2078	1	-2	21	2	00	0	013	-03.8	-03.8	4	7	8	4
31	NW	N76-59.4	W003-31.0	253	10	26	81	15.4	039-	1718	1	-2	22	2	08	2	012			2	7	8	6
31	NW	N77-02.1	W002-54.9	253	10	26	81	17.3	040-	1978	1	1	21	2	06	3	011	-00.5	-00.5	7	X	9	1
31	NW	N77-04.8	W003-04.3	253	10	26	81	23.1	041-		1	10	11	0	11	3	009			7	X	9	2
31	NW	N77-07.1	W003-13.7	253	10	27	81	02.4	042-	1947	1	8	00	0	01	6	008	-00.5	-00.5	7	X	9	5

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N77-12.3	W003-27.6	253	10	27	81	06.5	043-	2392	1	7	00	0			009			7	X	9	5
31	NW	N77-19.1	W003-54.4	253	10	27	81	10.0	044-	2019	1	7	00	0	10	3	009	01.0	01.2	2	7		6
31	NW	N77-24.8	W004-10.6	253	10	27	81	11.8	045-	1654	1	-2	00	0	10	3	009	01.0	01.2	2	7		6
31	NW	N77-22.7	W004-26.7	253	10	27	81	15.4	046-	1440	1	1	00	0	09	2	010	00.0	00.0	4	X	9	3
31	NW	N77-23.5	W004-38.6	253	10	27	81	18.5	047-	1379	1	5	00	0	13	1	012	-00.2	-00.2	5	7	8	5
31	NW	N77-59.8	W004-02.0	253	10	28	81	10.0	049-	2501	1	0	06	2			020			4	7		5
31	NW	N78-00.0	W003-46.0	253	10	28	81	11.2	050-	2605	1	0	06	2	12	4	021	00.0	00.0	4	7		5
31	NW	N78-00.0	W004-17.4	253	10	28	81	12.9	051-	2250	1	-2	06	3	18	3	021	-00.8	-00.9	2	6	8	7
31	NW	N78-00.3	W004-44.6	253	10	28	81	17.0	052-	1674	1	10	00	0	12	4	024	00.0	00.0	2	7	8	7
31	NW	N77-58.4	W005-19.5	253	10	28	81	20.7	053-	461	1	7	00	0	12	4	025	00.4	00.0	5	7	8	4
31	NW	N78-00.7	W005-43.1	253	10	28	81	23.6	054-	323	1	5	00	0	09	3	026	00.1	-00.2	2	7	8	6
31	NW	N78-00.2	W006-07.8	253	10	29	81	03.3	055-	309	1	9	00	0			025						
31	NW	N78-00.0	W006-30.4	253	10	29	81	05.7	056-	299	1						026						
31	NW	N77-59.1	W007-07.1	253	10	29	81	09.0	057-	346	1												
31	NW	N78-00.2	W007-32.6	253	10	29	81	11.2	058-	282	1	9	00	0	08	4	025	-00.2	-01.0	2			6
31	NW	N78-00.0	W008-02.2	253	10	29	81	13.7	059-	224	1	5	00	0	07	4	024	-00.2	-00.2	7	7	8	4
31	NW	N78-00.6	W008-31.9	253	10	29	81	16.6	060-	215	1	9	00	0	07	4	024	00.0	00.0	7	7	8	4
31	NW	N78-00.2	W008-51.6	253	10	29	81	19.5	061-	213	1	9	00	0	12	4	024	00.5	00.3	7	7	8	4
31	NW	N78-06.0	W009-41.7	253	10	30	81	02.3	062-	191	1	9	00	0		5	024			7	7		4
31	NW	N77-59.8	W010-11.7	253	11	03	81	07.5	063-	190	1	10	00	0									
31	NW	N77-59.8	W010-11.7	253	11	03	81	07.5	063-	190	1	10	00	0									
31	NW	N78-04.5	W009-43.2	253	11	03	81	15.9	064-	199	1	9	00	0	18	3	011	-14.8	-14.9	2	7	2	
31	NW	N78-09.3	W009-01.9	253	11	04	81	09.6	065-	190	1	10	00	0		2		-19.7	-19.7	2			
31	NW	N78-10.7	W008-26.9	253	11	05	81	04.2	066-	217	1	10	00	0	29	2	017	-19.0	-19.0				

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N78-10.2	W007-53.2	253	11	06	81	03.4	067-	211	1	10	00	0	08	5	009	-06.1	-07.4				
31	NW	N78-13.9	W007-20.5	253	11	06	81	05.7	068-	209	1	10	00	0	09	5	008	-04.5	-04.9				
31	NW	N78-13.9	W007-20.5	253	11	06	81	05.7	068-UP	209	1	10	00	0	09	5	008	-04.5	-04.9				
31	NW	N78-20.2	W006-55.6	253	11	06	81	09.1	069-	269	1	10	00	0	10	3	006	-04.5	-04.9				
31	NW	N78-20.2	W006-55.6	253	11	06	81	09.1	069-UP	269	1	10	00	0	10	3	006	-04.5	-04.5				
31	NW	N78-10.7	W006-46.9	253	11	06	81	15.3	070-	287	1	9	00	0	23	5	008	-07.1	-07.7	1	4	6	7
31	NW	N78-10.9	W006-13.1	253	11	07	81	00.0	071-	228	1	10	00	0			013	-13.2	-13.7	0		0	7
31	NW	N78-09.6	W005-17.7	253	11	07	81	11.8	072-	346	1	8	00	0									
31	NW	N78-11.2	W004-56.2	253	11	07	81	14.5	073-	863	1	9	00	0	25	3	007	-08.3	-08.5	4	7	8	4
31	NW	N78-12.5	W004-31.5	253	11	07	81	18.2	074-	1448	1	8	00	0	25	5	010	-11.7	-11.7	0		0	6
31	NW	N78-11.7	W004-12.0	253	11	07	81	22.8	075-	2160	1	8	00	0	22	3	014	-14.8	-14.8	0		0	6
31	NW	N78-08.4	W003-41.8	253	11	08	81	01.9	076-	2474	1	8	00	0	31	4	010	-14.1	-14.0	0		0	6
31	NW	N78-03.8	W003-12.6	253	11	08	81	06.1	077-	2696	3	9	00	0	06	4	003	-11.0	-11.0				
31	NW	N78-05.4	W002-44.5	253	11	08	81	08.5	078-	2738	3	2	00	0		4	012						
31	NW	N78-58.9	E001-18.8	288	11	08	81	23.4	079-	2438	3	0	16	2	19	7	990	00.7	07.7	6	7	8	4
31	NW	N79-03.6	E000-58.1	288	11	09	81	05.5	080-	2697	3	9	00	0	19	6	989	00.7	00.7	1			
31	NW	N79-03.7	E000-32.7	288	11	09	81	10.3	081-	2556	3	10	00	0	22	4	991	-05.4	-05.4	1			6
31	NW	N78-59.8	E000-09.6	288	11	09	81	15.4	082-	2528	1	9	00	0	27	3	991	-09.8	-09.8	7	7	8	4
31	NW	N78-58.3	W000-12.4	253	11	09	81	18.6	083-	2267	3	9	00	0	32	4	992	-14.0	-14.0	1	7	1	5
31	NW	N78-55.8	W000-48.7	253	11	09	81	22.1	084-	2528	1	9	00	0	34	5	992	-15.2	-15.2	1	7	1	5
31	NW	N78-54.3	W001-17.5	253	11	10	81	01.0	085-	2477	1	9	00	0	30	6	992	-15.5	-17.8	1	7		
31	NW	N78-46.0	W001-00.0	253	11	10	81	04.9	086- D	2565	1	8	00	0		7	992			1			
31	NW	N78-45.2	W001-01.6	253	11	10	81	05.1	086- D	2565	1	8	00	0		7	992			1			
31	NW	N78-45.2	W001-01.6	253	11	10	81	05.1	086-UP	2565	1	8	00	0		7	992			1			

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N78-36.3	W000-56.8	253	11	10	81	08.6	087-	2569	1	9	00	0	33	7	993	-16.8	-16.8	1			
31	NW	N78-32.7	W000-33.9	253	11	10	81	11.6	088-		1	8	00	0	33	8	994			1			6
31	NW	N78-08.3	W001-04.2	253	11	10	81	17.9	089-	2798	3	0	30	2	32	6	994			7	X	9	1
31	NW	N77-48.3	W001-48.3	253	11	11	81	00.1	090-	2709	1	0	30	3	31	8	996	-12.0	-12.0	7	X	9	1
31	NW	N77-30.5	W002-42.1	253	11	11	81	07.2	091-	2842	1	0	30	2	33	7	001	-12.3	-12.3	7			
31	NW	N77-08.8	W002-32.6	253	11	11	81	12.6	092-	2996	1	0	34	3	31	6	003	-12.0	-12.0	7	7	8	4
31	NW	N77-00.7	W002-21.2	253	11	11	81	14.4	093-	2933	1	0	34	3	31	6	004	-12.0	-12.0	7	7	8	5
31	NW	N77-00.7	W002-21.2	253	11	11	81	14.4	093-UP	2933	1	0	34	3	31	6	004	-12.0	-12.0	7	7	8	5
31	NW	N76-58.8	W003-04.0	253	11	11	81	17.9	094-	1988	1	5	00	0	30	6	007	-13.2	-13.3	7	7	5	5
31	NW	N76-58.8	W003-04.0	253	11	11	81	17.9	094-UP	1988	1	5	00	0	30	6	007	-13.2	-13.3	7	7	5	5
31	NW	N76-56.8	W003-31.6	253	11	11	81	21.1	095-	1628	1	10	00	0	02	4	018	-15.2	-15.3	7	7	4	6
31	NW	N76-56.8	W003-31.6	253	11	11	81	21.1	095-UP	1628	1	10	00	0	02	4	018	-15.2	-15.3	7	7	4	6
31	NW	N76-58.0	W003-49.3	253	11	12	81	00.0	096-	1862	1	8	00	0	32	4	010	-16.2	-16.2	0		0	6
31	NW	N76-58.0	W003-49.3	253	11	12	81	00.0	096-UP	1862	1	8	00	0	32	4	010	-16.2	-16.2	0		0	6
31	NW	N76-55.7	W004-09.7	253	11	12	81	04.1	097-	1489	1	9	00	0	32	4	011	-16.2	-16.2	0		0	6
31	NW	N76-55.7	W004-09.7	253	11	12	81	04.1	097-UP	1489	1	9	00	0	32	4	011	-16.2	-16.2	0		0	6
31	NW	N76-56.1	W004-31.8	253	11	12	81	06.9	098-	1416	1	7	00	0	24	3	011	-17.0	-17.0	0		0	6
31	NW	N76-56.1	W004-31.8	253	11	12	81	06.9	098-UP	1416	1	7	00	0	24	3	011	-17.0	-17.0	0		0	6
31	NW	N76-59.7	W004-45.6	253	11	12	81	09.4	099-	1445	1	8	00	0	32	4	013	-17.0	-16.9	0		0	6
31	NW	N76-59.7	W004-45.6	253	11	12	81	09.4	099-UP	1445	1	8	00	0	32	4	013	-17.0	-16.9	0		0	6
31	NW	N76-59.4	W005-13.9	253	11	12	81	12.0	100-	1380	1	8	00	0	33	3	013	-16.3	-16.3	0		0	6
31	NW	N76-59.4	W005-13.9	253	11	12	81	12.0	100-UP	1380	1	8	00	0	33	3	013	-16.3	-16.3	0		0	6
31	NW	N76-58.6	W005-36.1	253	11	12	81	14.0	101-	1088	1	8	00	0	33	6	013	-16.4	-16.5	0		0	6
31	NW	N76-58.6	W005-36.1	253	11	12	81	14.0	101-UP	1088	1	8	00	0	33	6	013	-16.4	-16.5	0		0	6

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N77-01.2	W006-03.2	253	11	12	81	17.5	102-	0728	1	10	00	0	30	4	014	-21.0	-20.8	0		0	6
31	NW	N77-01.2	W006-03.2	253	11	12	81	17.5	102-UP	0728	1	10	00	0	30	4	014	-21.0	-20.8	0		0	6
31	NW	N76-54.1	W005-45.2	253	11	13	81	01.6	103-	1191	1	9	00	0	30	3	015	-22.0	-22.0	0		0	6
31	NW	N76-50.1	W005-52.4	253	11	13	81	04.0	104-	1380	1	9	00	0	32	2	016			0		0	6
31	NW	N76-46.0	W006-05.2	253	11	13	81	06.5	105-	1318	1	9	00	0	31	2	016			0		0	6
31	NW	N76-40.0	W006-23.8	253	11	13	81	09.7	106-	1398	1	9	00	0	24	2	015	-21.2	-20.5	0		0	6
31	NW	N76-34.7	W006-20.7	253	11	13	81	12.3	107-	1400	1	10	00	0	25	3	016	-22.0	-22.0	0		0	6
31	NW	N76-29.4	W006-07.6	253	11	13	81	13.9	108-	1985	1	6	00	0	23	3	017	-16.2	-16.2	0		0	6
31	NW	N76-34.4	W005-51.2	253	11	13	81	16.3	109-	2006	1	5	00	0	23	3	016	-15.7	-15.7	0		0	6
31	NW	N76-35.0	W005-33.4	253	11	13	81	18.4	110-	2078	1	10	00	0	22	4	016	-16.1	-16.1	0		0	6
31	NW	N76-36.1	W005-02.4	253	11	13	81	23.7	111-	2258	1	10	00	0	15	2	014			7	7	4	6
31	NW	N76-39.6	W004-45.2	253	11	14	81	01.6	112-	2203	1	9	00	0	08	3	012			7			
31	NW	N76-38.5	W004-17.5	253	11	14	81	05.8	113-	2569	3	9	00	0		3	005	-02.8	-03.2	7			
31	NW	N76-45.3	W004-20.4	253	11	14	81	08.5	114-	2228	1	7	00	0	20	5	003	-03.0	-03.5	1			
31	NW	N76-49.8	W004-18.4	253	11	14	81	11.1	115-	1837	1	7	00	0	19	2	002	-02.8	-03.2	1			
31	NW	N76-56.4	W004-19.1	253	11	14	81	14.7	116-	1538	1	7	00	0	13	4	997	-01.6	-02.0	1	7	8	6
31	NW	N77-01.7	W004-10.4	253	11	14	81	16.8	117-	1718	1	9	00	0	09	5	994	-01.7	-01.7	7	X	9	3
31	NW	N77-00.0	W004-48.4	253	11	14	81	18.8	118-	1538	1	9	00	0	08	5	988	-01.2	-01.3	7	X	9	3
31	NW	N77-00.0	W004-26.3	253	11	14	81	21.2	119-	1628	1	9	00	0	09	5	982	-00.5	-00.5	7	X	9	3
31	NW	N77-00.1	W004-05.0	253	11	15	81	00.2	120-	1837	1	8	00	0	18	3	982	-01.2	-01.2	1			
31	NW	N77-00.9	W003-42.1	253	11	15	81	02.6	121-	1874	1	5	00	0	15	4	981			1			
31	NW	N76-58.4	W003-08.0	253	11	15	81	05.5	122-	1764	1	3	00	0		4	982			1			
31	NW	N76-18.0	W007-19.6	253	10	19	81	01.1	012-	1289	1	5	00	0			008	-06.2	-07.0				
31	NW	N76-50.3	W008-55.6	253	10	21	81	08.4	021-	0356	1	10	00	0	26	2	012	-08.8	-09.0	7	7	4	6

STATION DATA MIZLANT 81 (ARCTIC EAST 1981)

NAT	SHIP	LAT	LONG	MSQ	MO	DY	YR	HR	STA	DPTH	NAV	ICE	WVD	HT	WND	V	BAR	DRY-T	WET	WTHR	CL	AMT	VIS
31	NW	N76-32.7	W007-13.2	253	10	25	81	06.9	027-	0875	1	9	00	0	09	3	008	-01.6	-01.8	7	X	9	6
31	NW	N77-39.8	W003-48.9	253	10	28	81	03.8	048-	2252	1	-2	06	3	15	4	018	-01.8	-02.0	4	X	9	
31	NW	N78-10.9	W006-13.1	253	11	07	81	00.0	071-	0228	1	10	00	0			013	-13.2	-13.7	0		0	7

TOTAL= 171

APPENDIX B

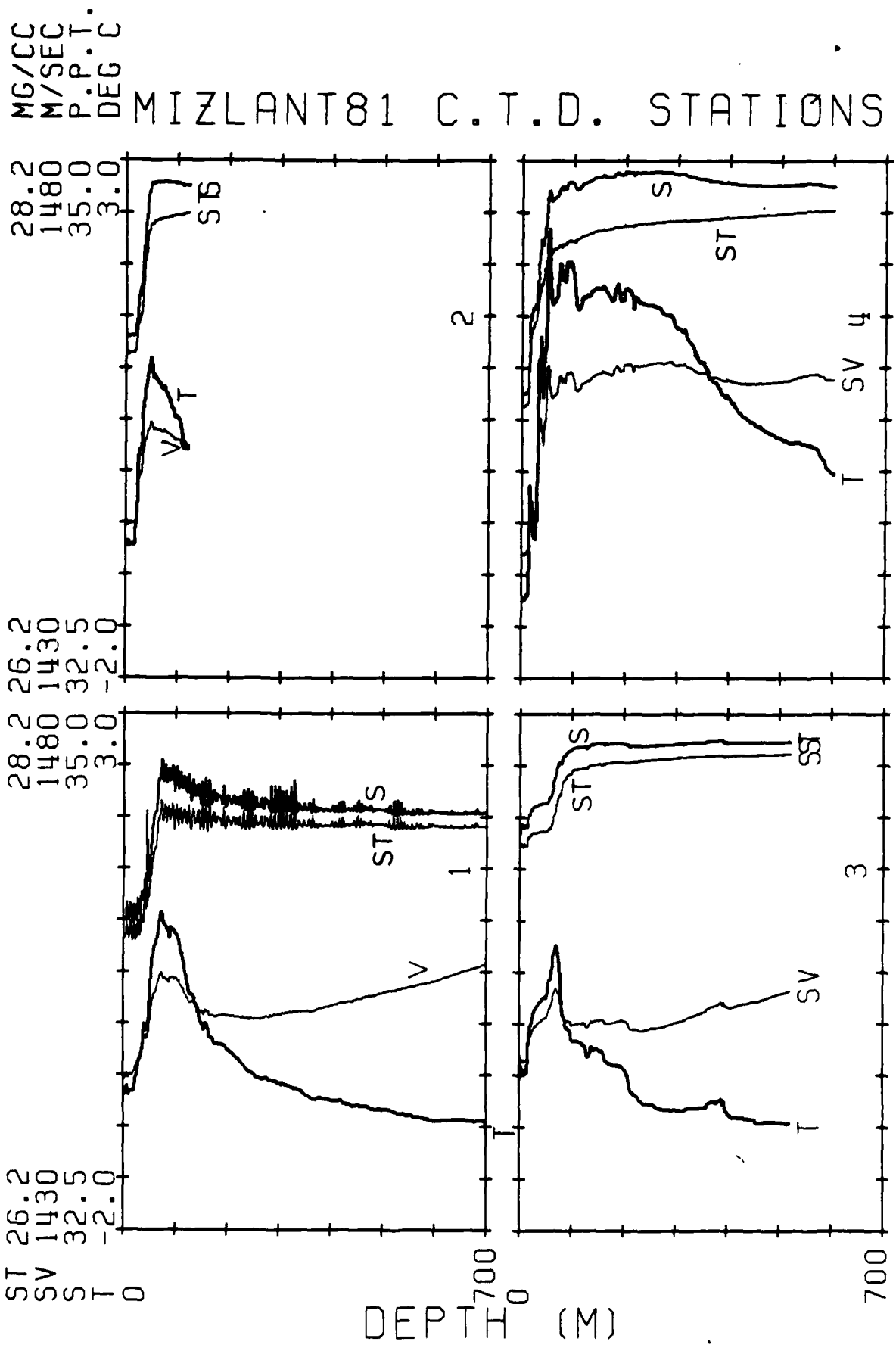
Property Profiles For MIZLANT 81 Stations

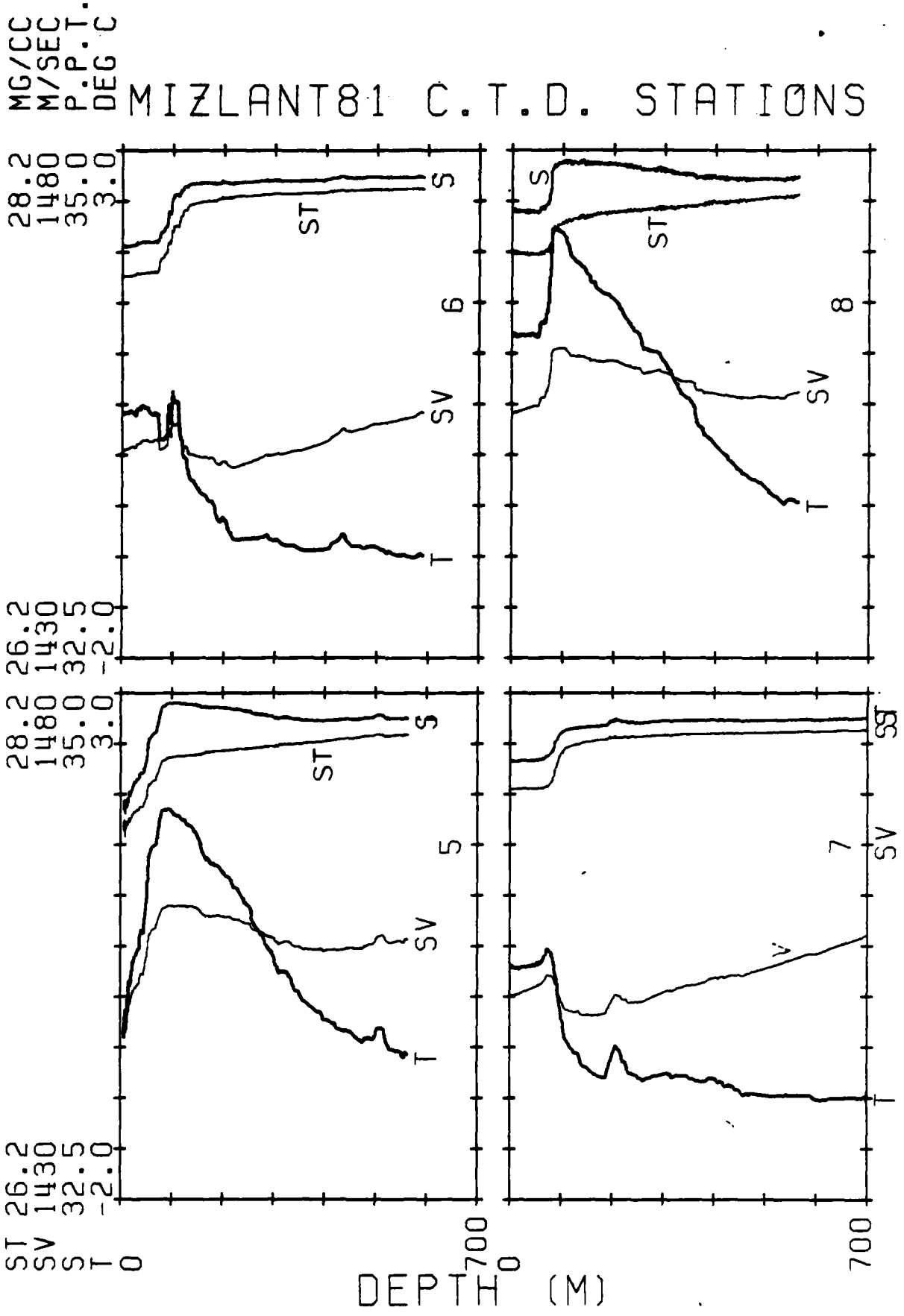
This section contains plots of temperature, salinity, sound speed, and sigma-t for the 122 stations of MIZLANT 81 which were recovered from the cassette tapes of the data-logging system. Both down and up traces were obtained at each station; however, the up trace was recorded only on about half of the stations. To illustrate the change in property profile with time, a sampling of both down and up traces is included between Stations 86 and 102. Where this is done the down trace is on the left.

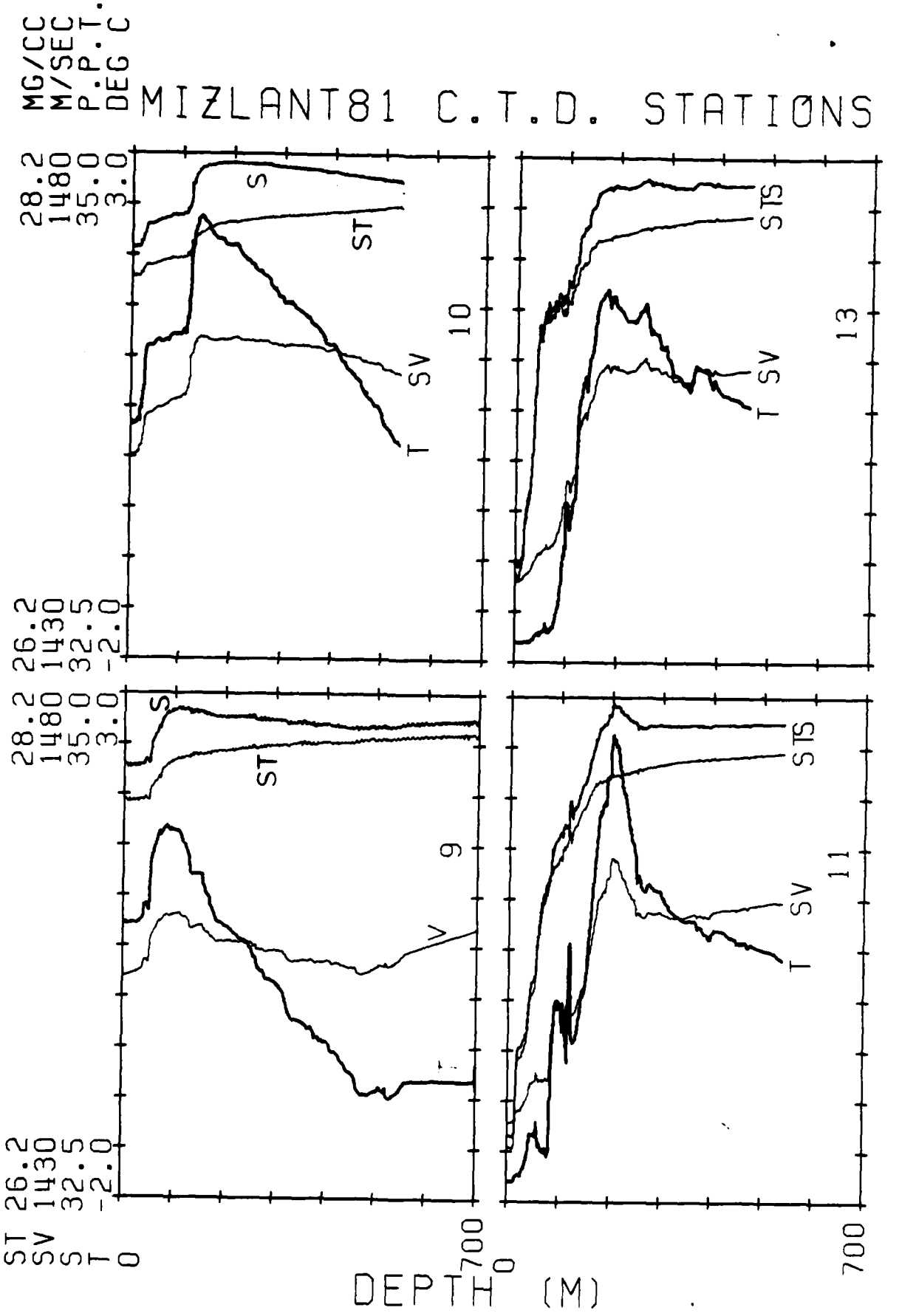
Temperature has a small range for stations well within the ice pack whereas, east of the ice, the temperature has a moderate range and the salinity a small range. In order to show the property variations with maximum resolution the property scales have been expanded. This has the concomitant result that the scales must vary from page to page. In some cases, the same stations have been plotted on two different scales.

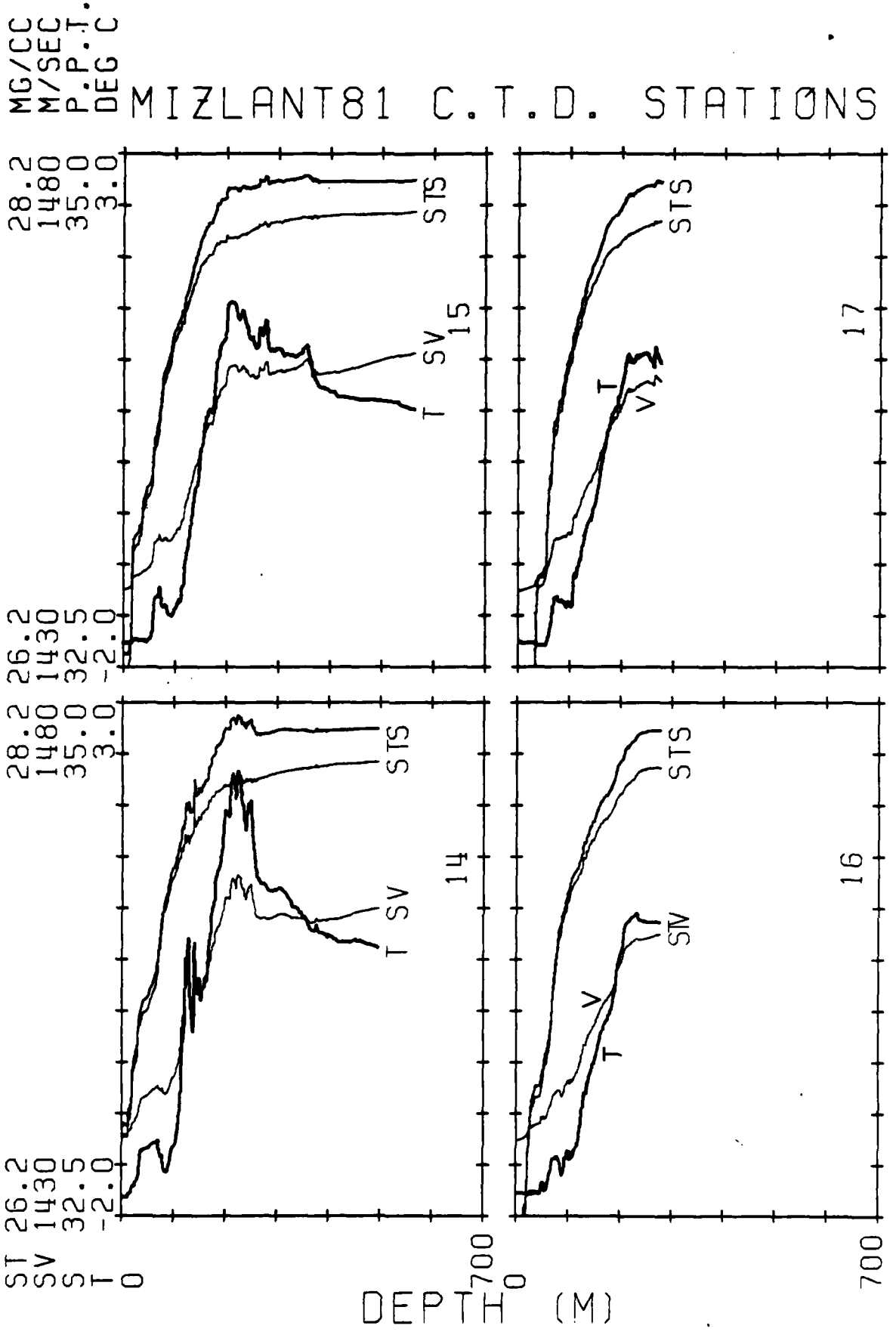
The stations are plotted four per page. To assist in distinguishing between curves the temperature profile has been darkened three times while the salinity trace only twice. The curves are also labeled: T for temperature, S

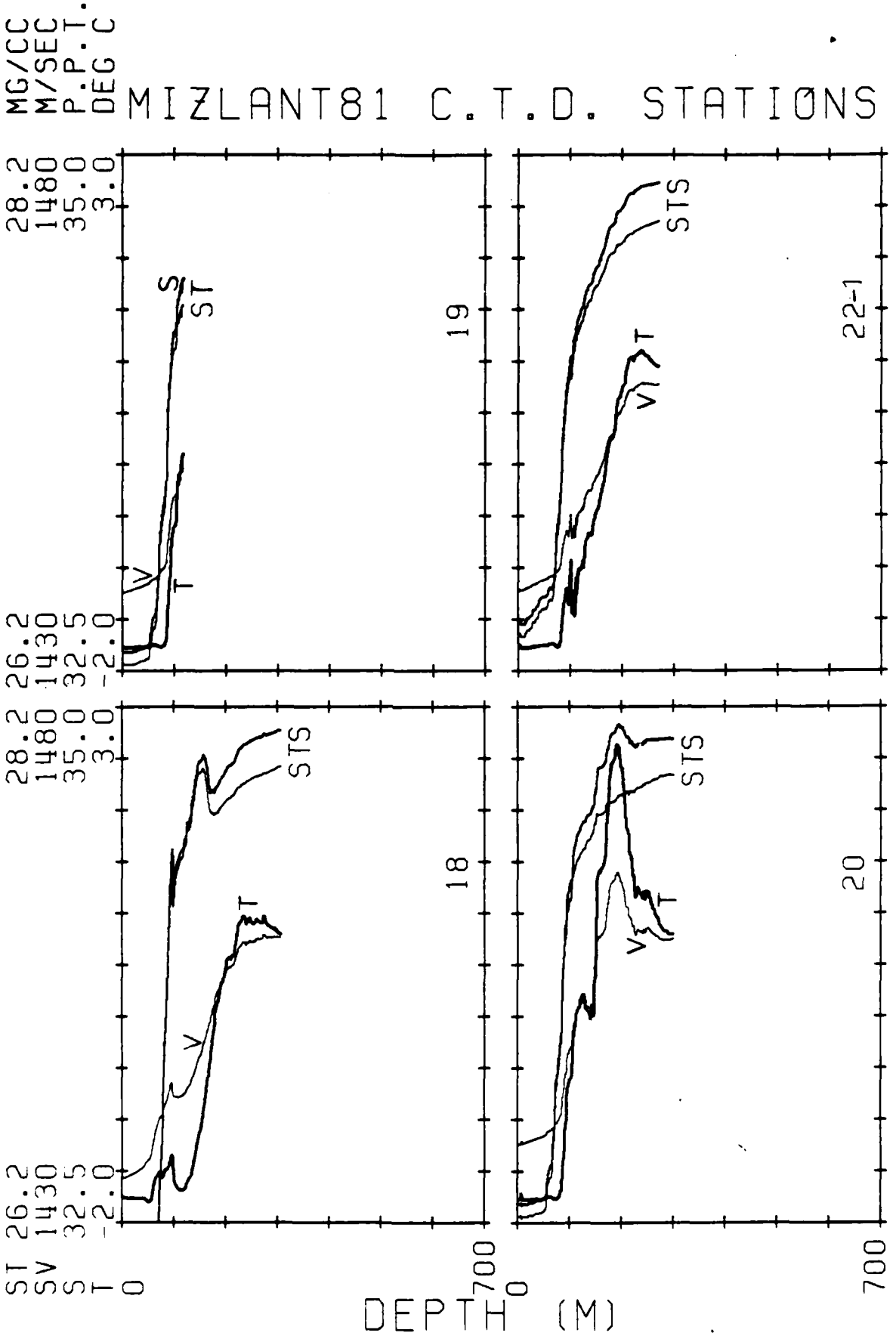
for salinity, SV for sound velocity, and ST for sigma-t. The plots of Station 86 may appear confusing. The first plot is for 86-Down; computer memory was used up before the lowering was completed and a short section of the continuation of this lowering to greater depth was recorded as 86-2-D and is shown in the next frame. Finally, the up trace, starting at the deepest depth of 86-2-D, is shown at the right, failing to reach the surface before the memory was full.

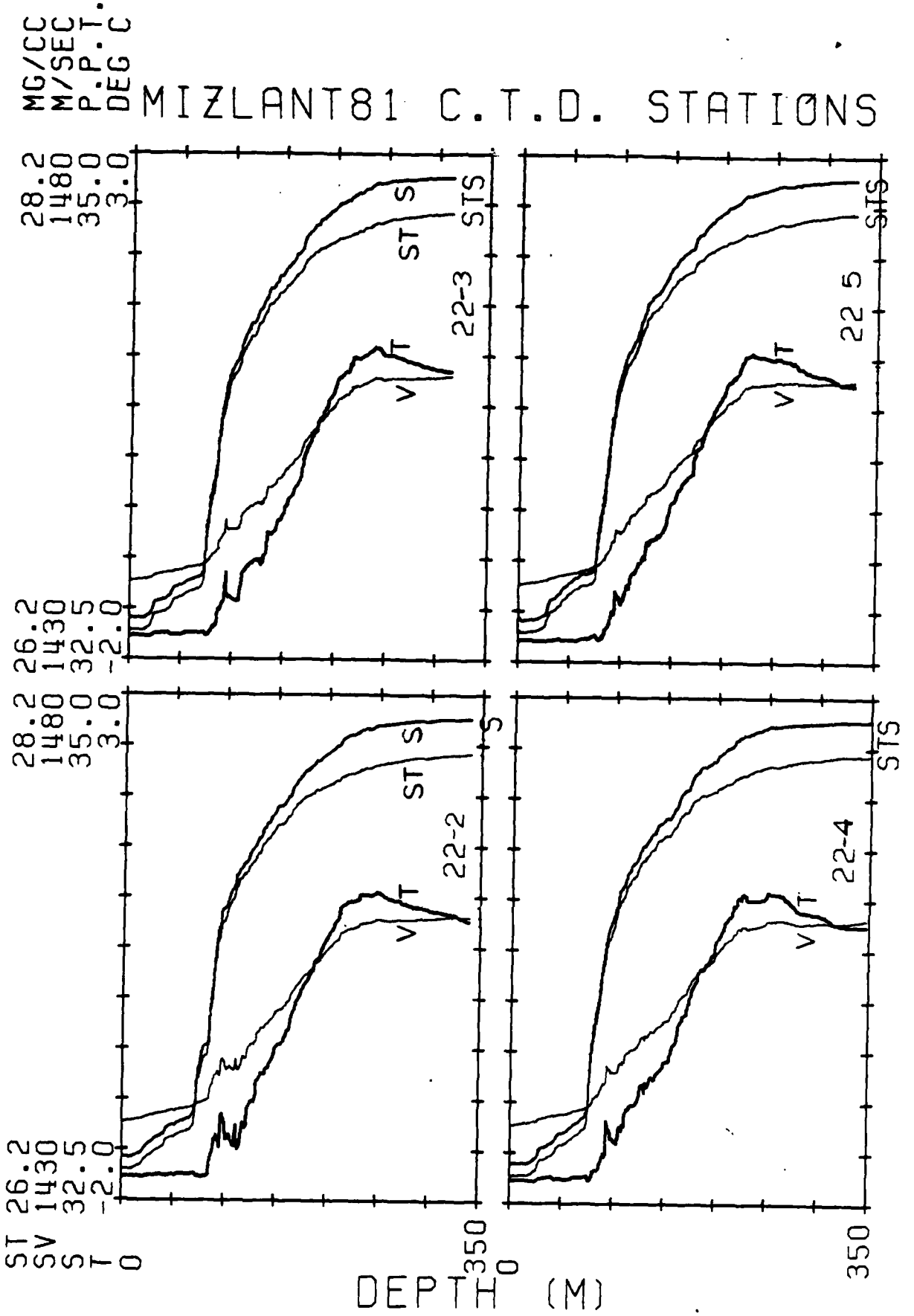

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.0
3.0
26.2
1430
32.5
-2.0
ST
SV
S
T
0
700
DEPTH (M)
1
2
3
4

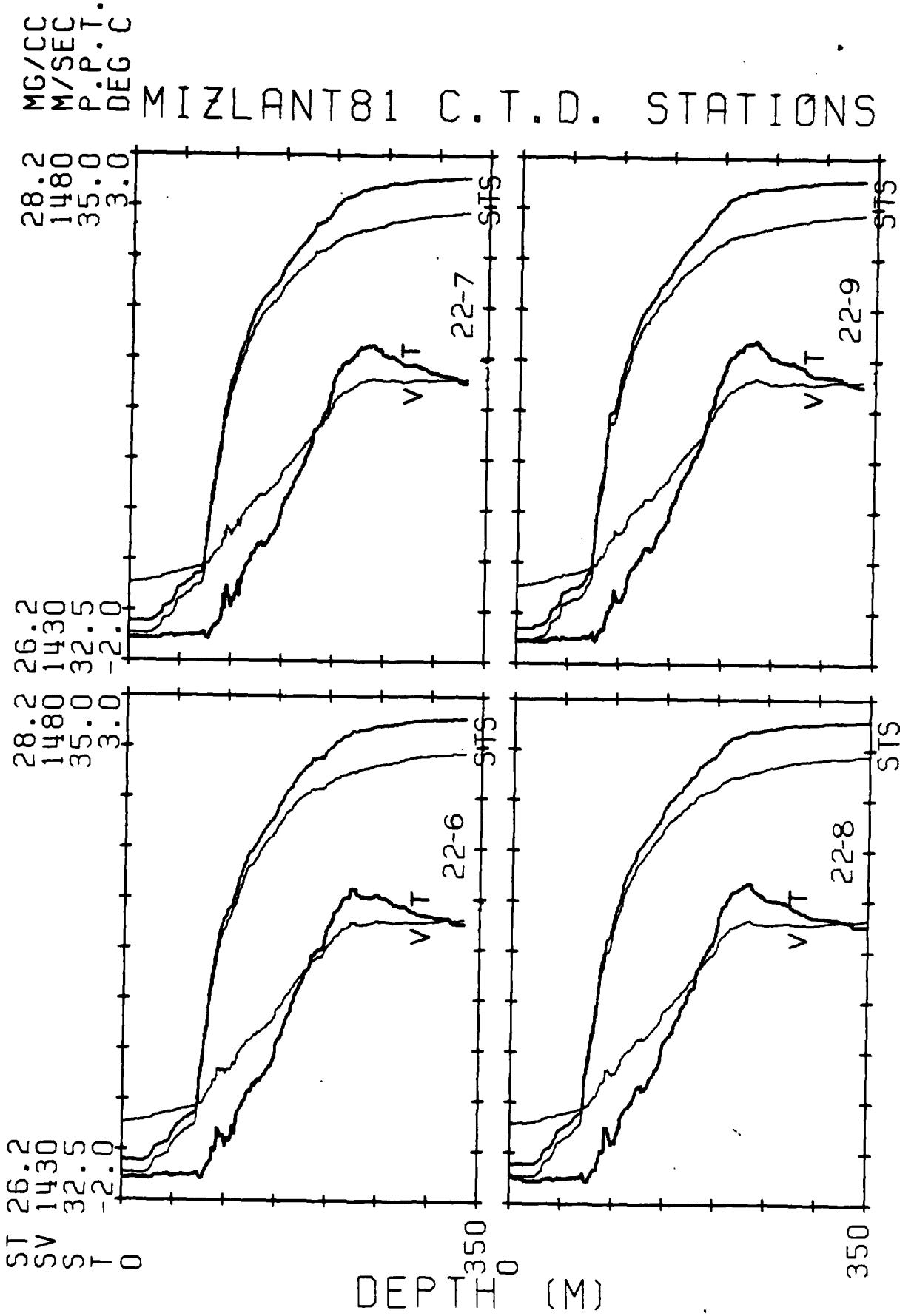

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
ST
SV
S
T
28.2
1480
35.0
3.0
26.2
1430
32.5
-2.0
0
700
DEPTH (M)
6
8
5
7

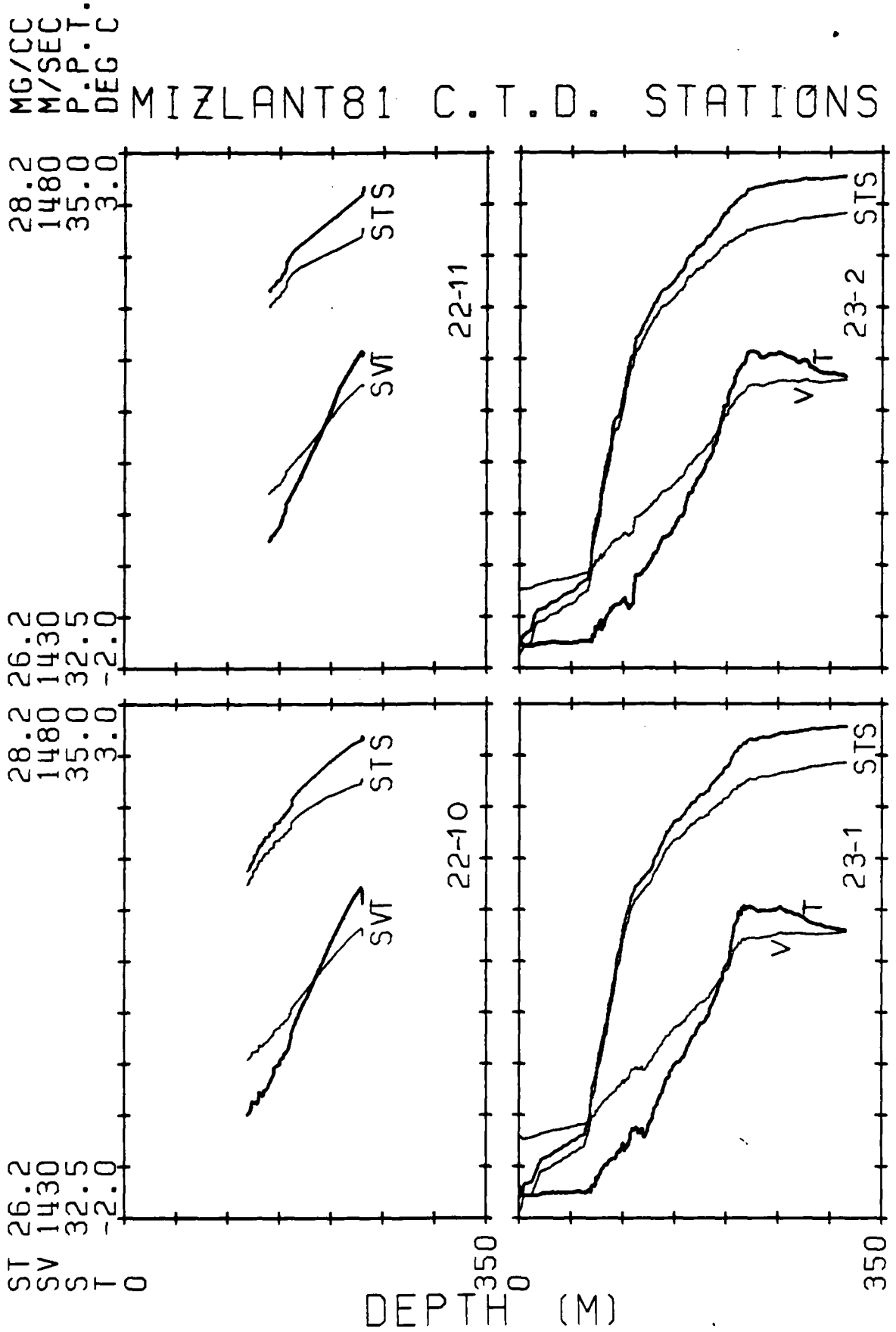

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.0
3.0
S
ST
T SV
10
13
9
11
26.2
1430
32.5
-2.0
ST 26.2
SV 1430
S 32.5
T -2.0
0
700
DEPTH (M)

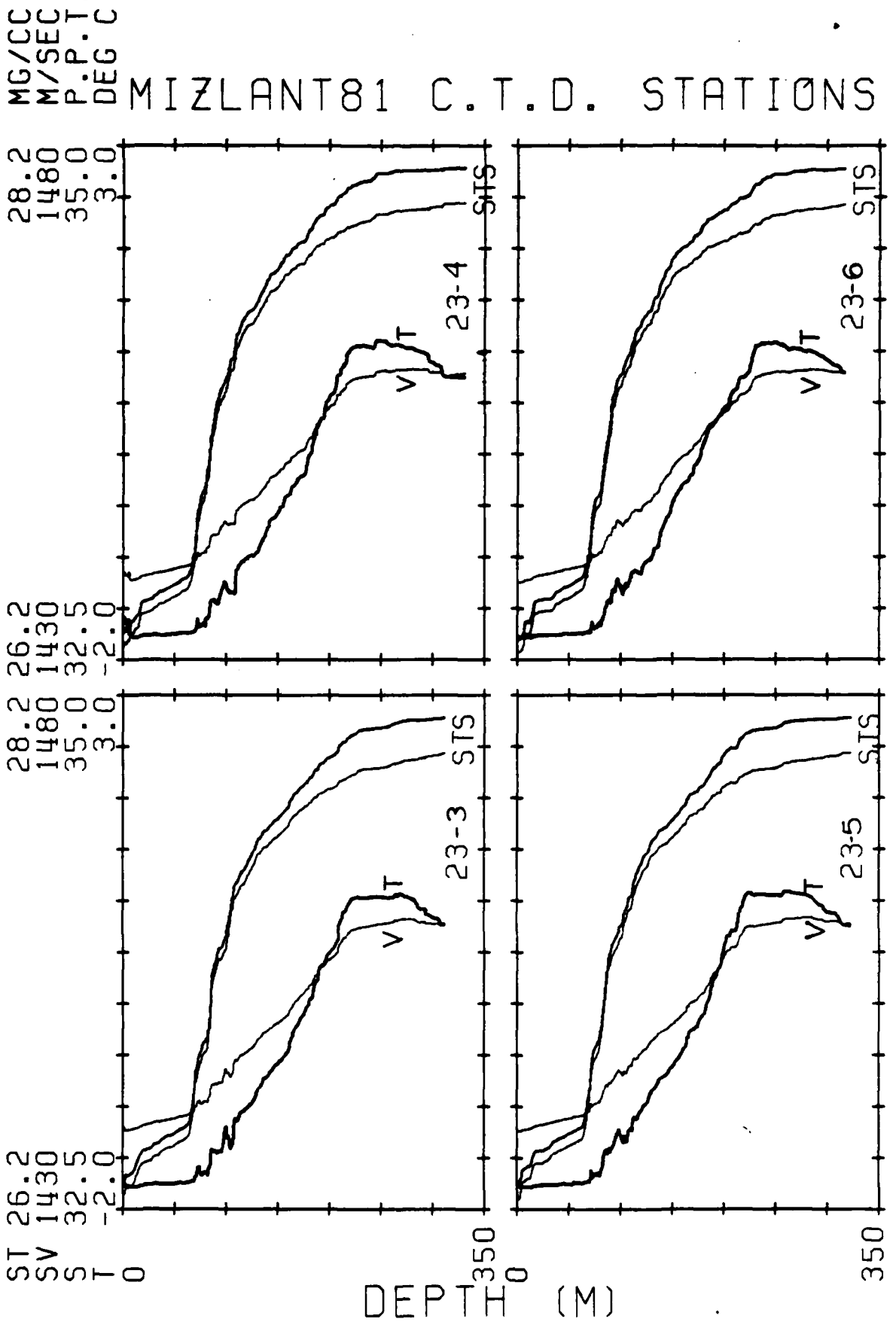

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.0
3.0
26.2
1430
32.5
-2.0
STS
SV
T
15
17
14
16
ST
SV
S
T
0
700
DEPTH (M)

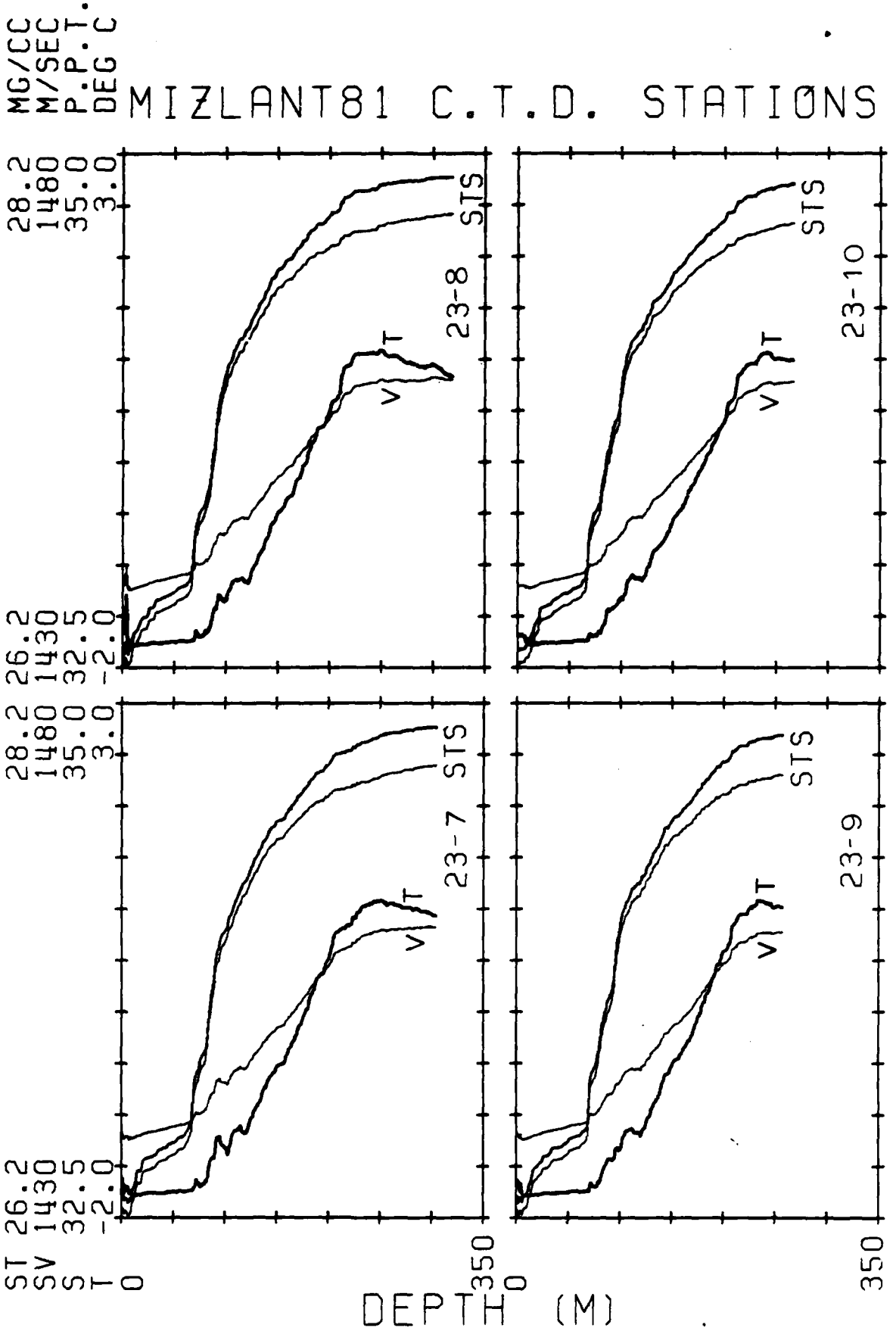

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.0
3.0
26.2
1430
32.5
-2.0
SI
SV
S
T
0
700
DEPTH (M)
19
22-1
18
20
STS
ST
S
T
V

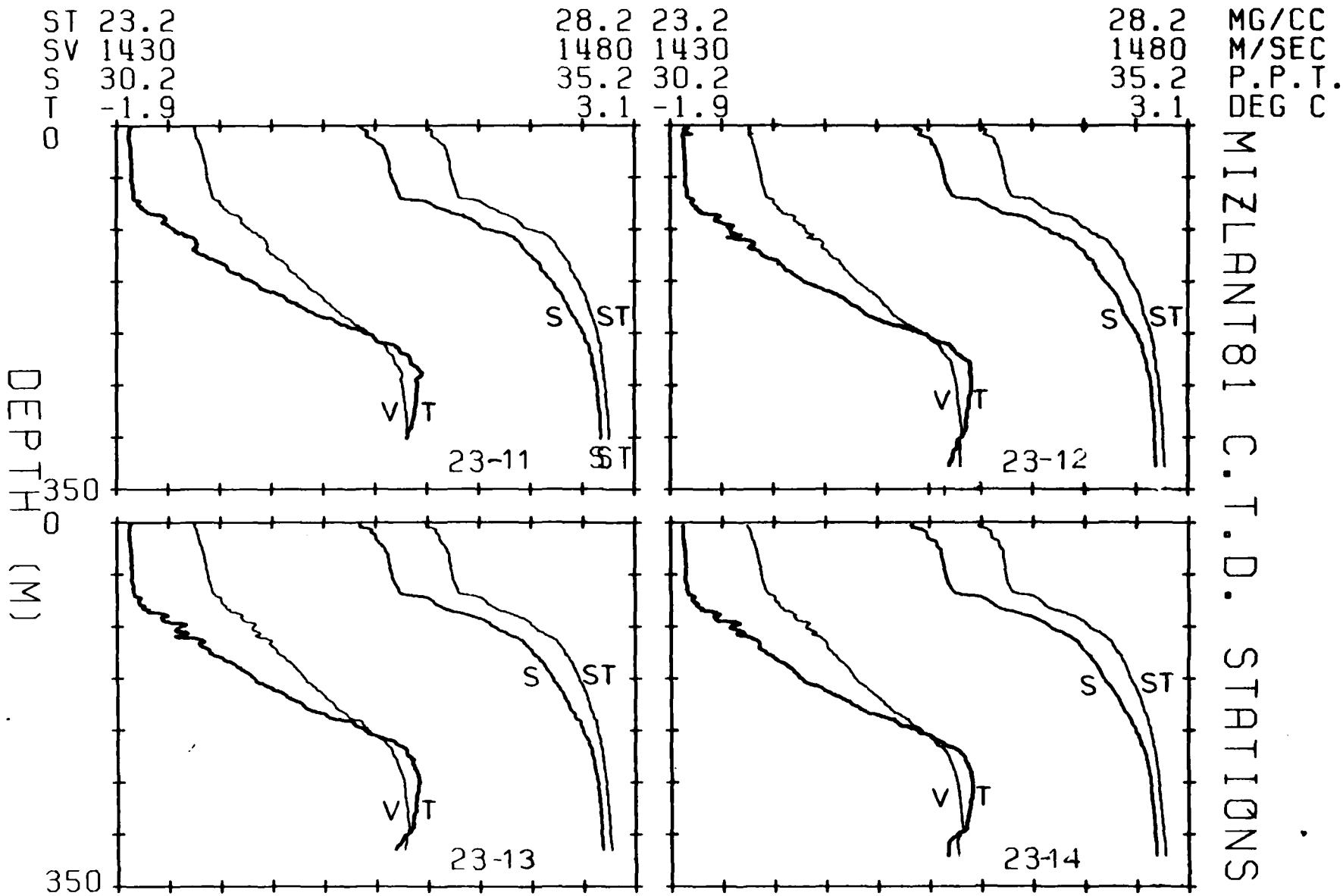

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.0
3.0
26.2
1430
32.5
-2.0
ST
SV
S
T
0
350
DEPTH (M)
22-3
22 5
22-2
22-4
S
T
V
STS

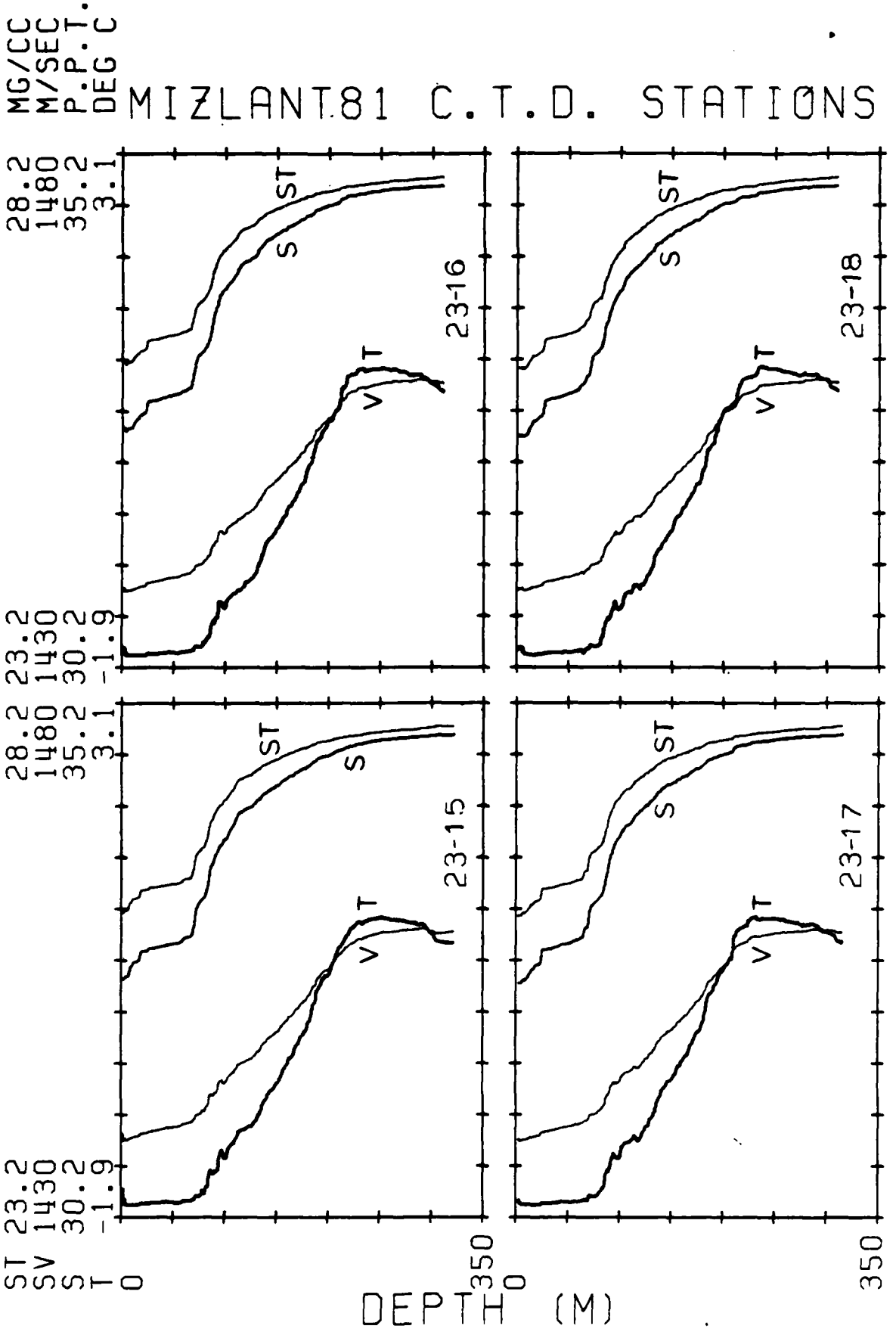

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.0
3.0
26.2
1430
32.5
-2.0
ST
SV
S
T
0
350
DEPTH (M)
22-7
22-9
22-6
22-8
STS
V
T

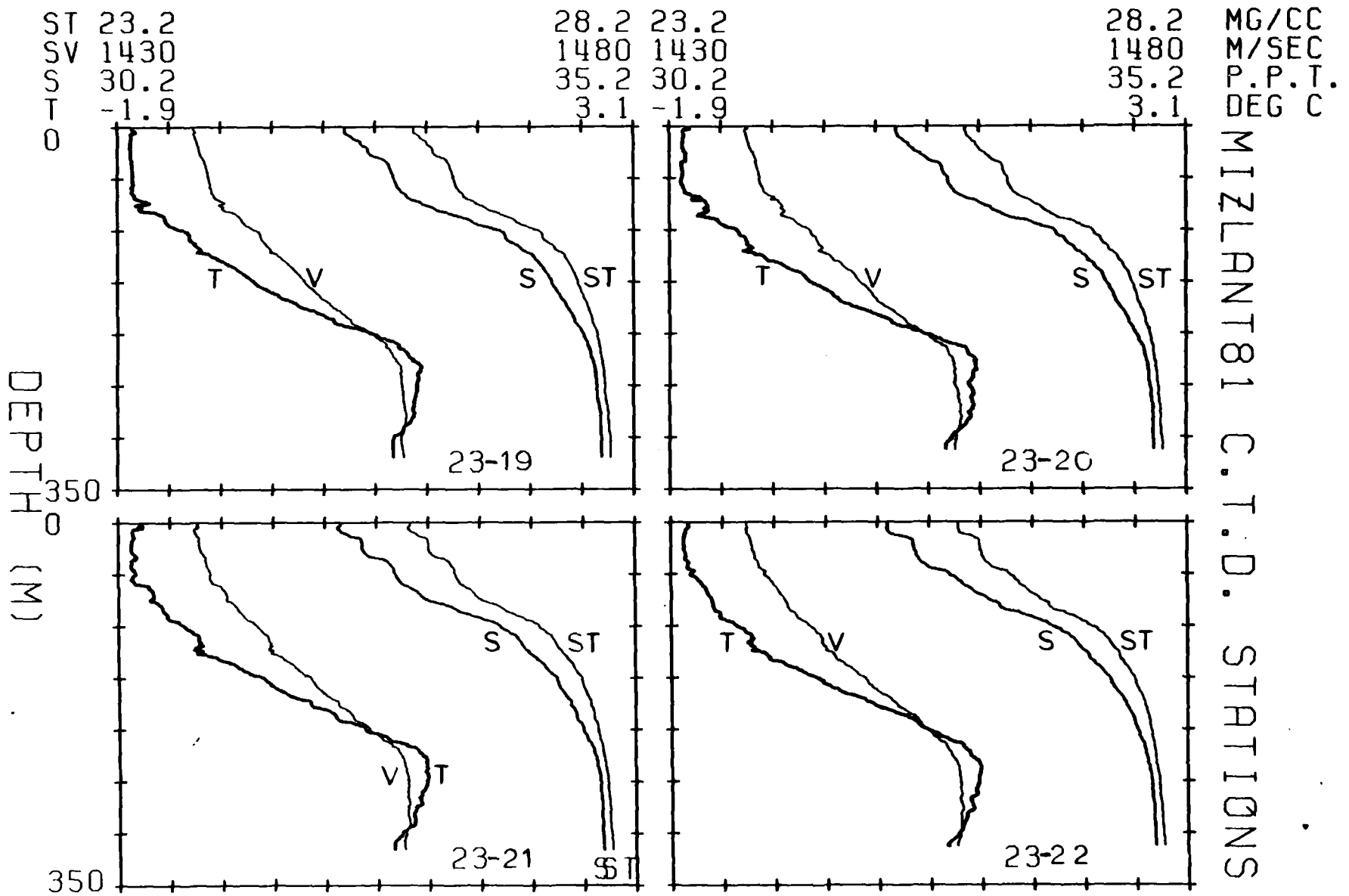

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.0
3.0
26.2
1430
32.5
-2.0
ST
SV
S
T
STS
SVT
22-11
23-2
22-10
23-1
V
T
0
350
DEPTH (M)

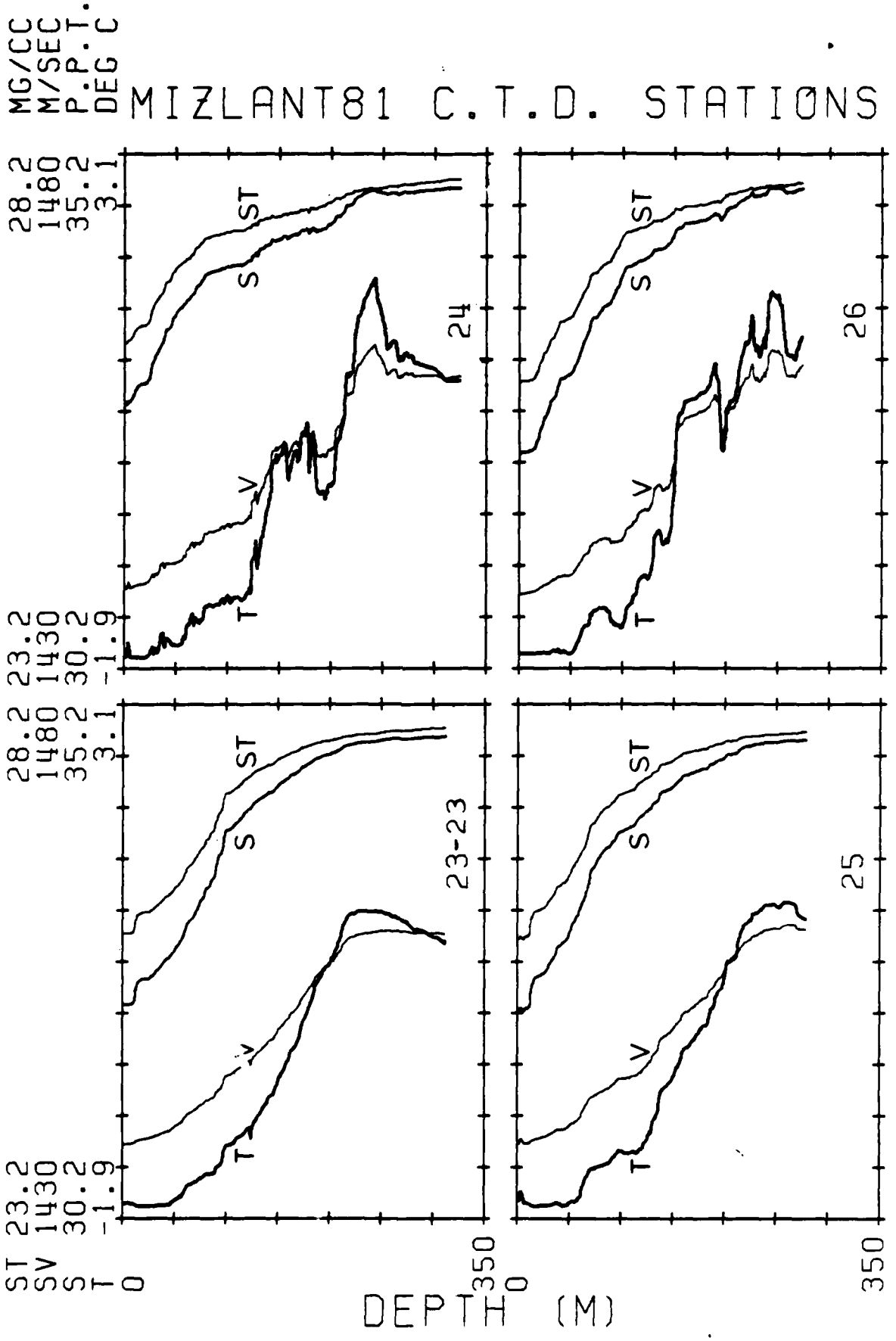

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.0
3.0
26.2
1430
32.5
-2.0
ST
SV
S
T
0
350
DEPTH (M)
23-4
23-6
23-3
23-5
STS
T
V

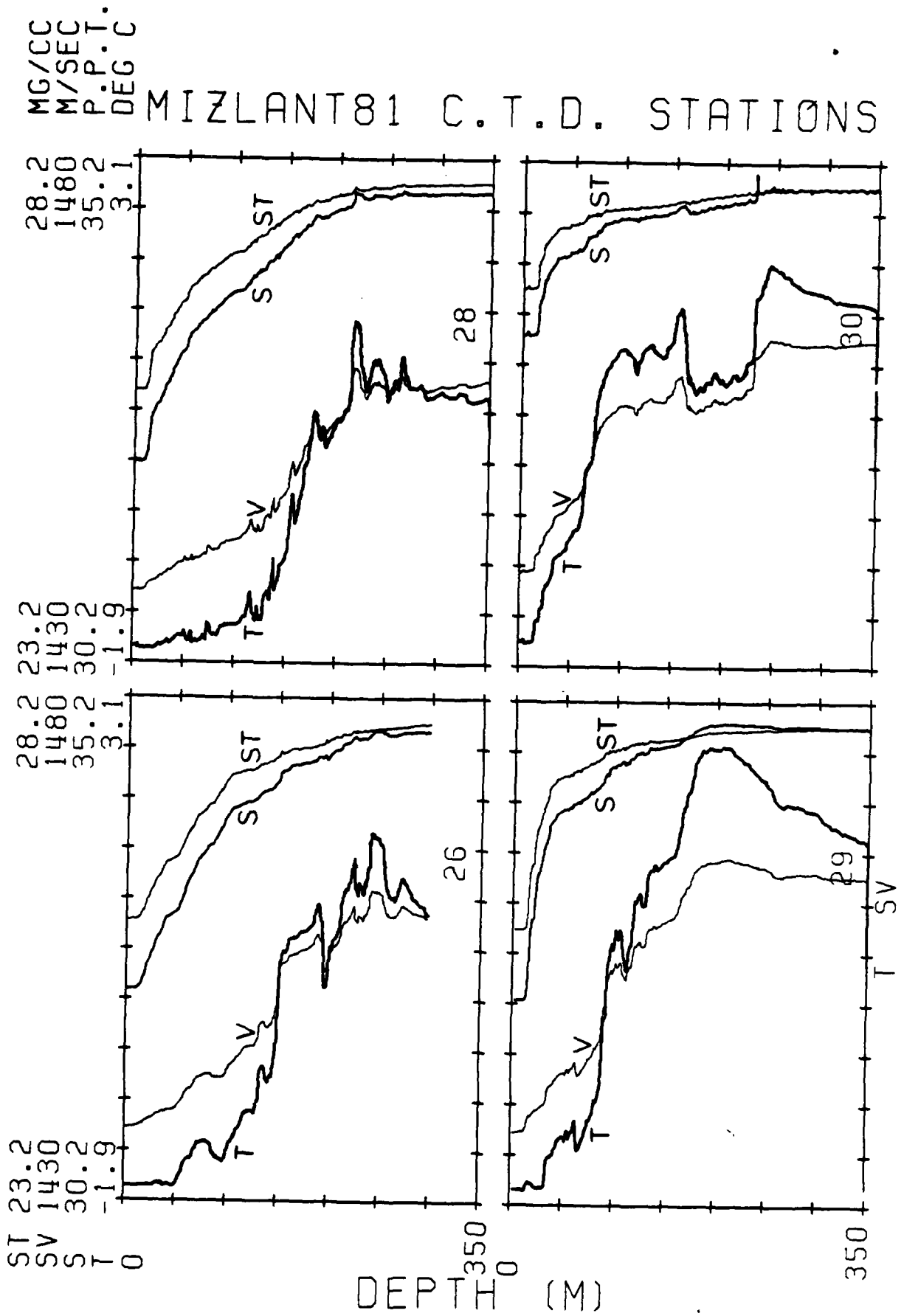

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.0
3.0
26.2
1430
32.5
-2.0
STS
T
V
23-8
23-10
23-7
23-9
ST
SV
S
T
0
350
DEPTH (M)

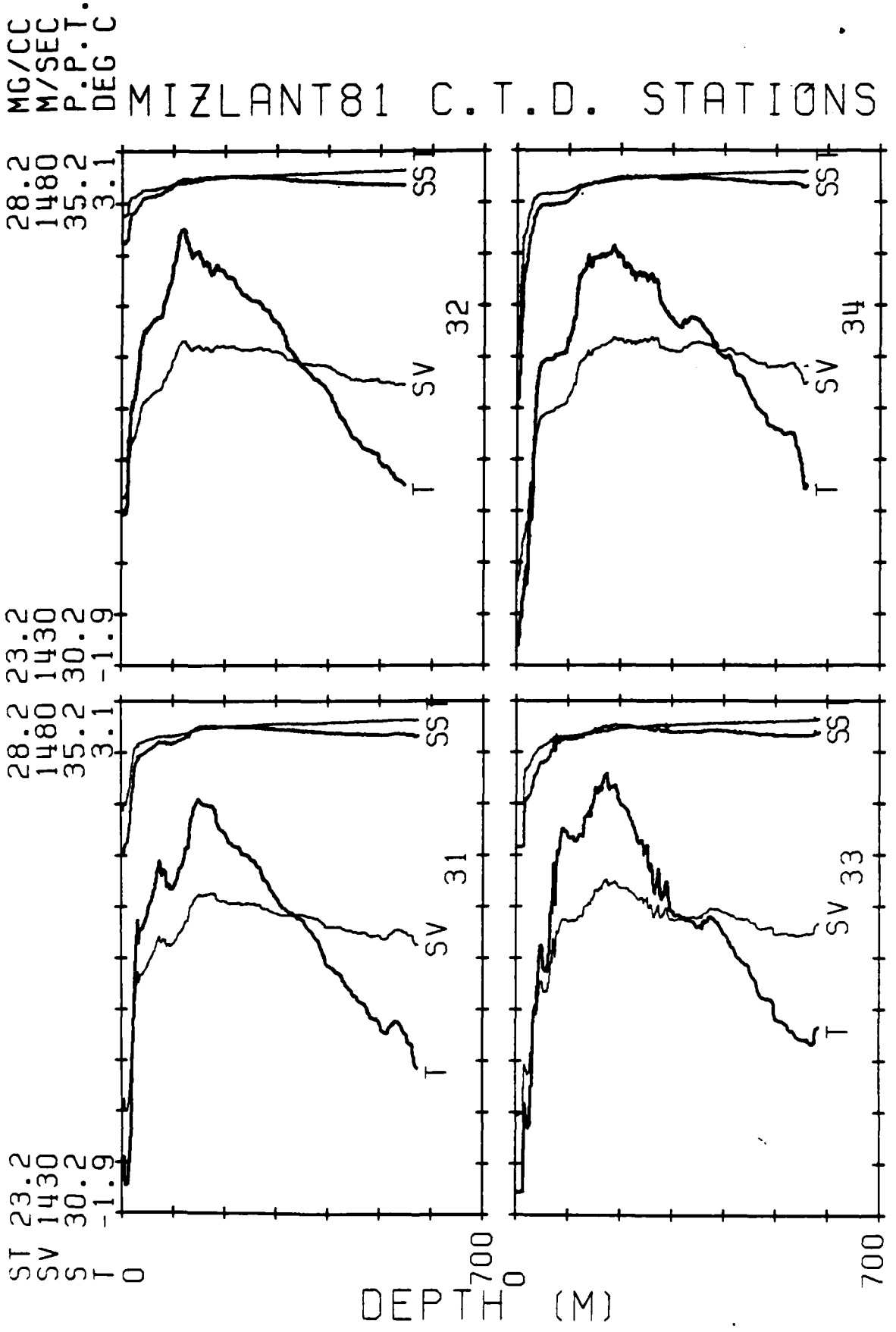

ST 23.2 28.2 23.2 28.2 MG/CC
SV 1430 1480 1430 1480 M/SEC
S 30.2 35.2 30.2 35.2 P.P.T.
T -1.9 3.1 -1.9 3.1 DEG C
MIZLANT81 C.T.D. STATIONS
DEPTH (M)
0
350
S
ST
V
T
23-11
23-12
23-13
23-14

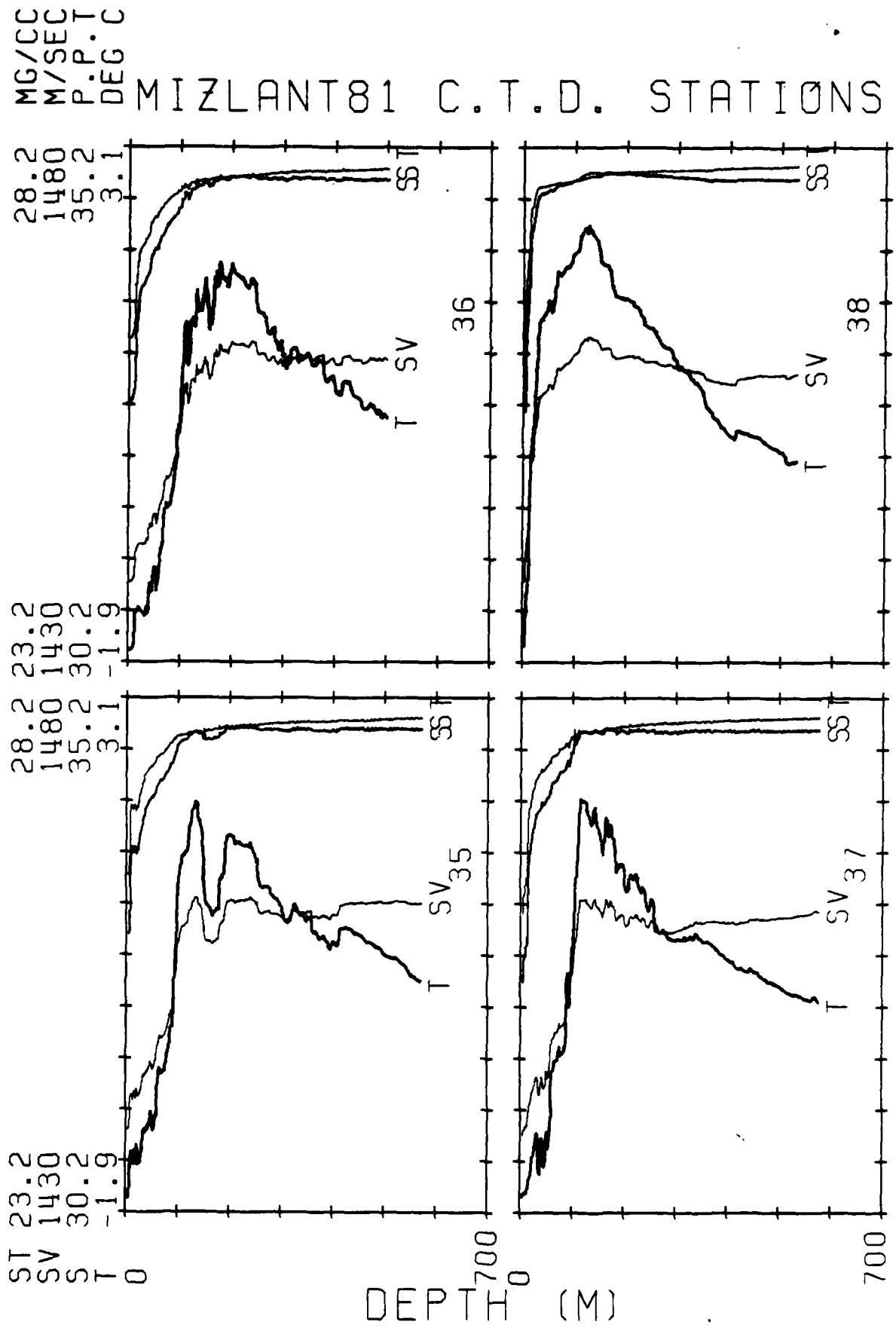

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT.81 C.T.D. STATIONS
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST
S
T
V
23-16
23-18
23-15
23-17
ST 23.2
SV 1430
S 30.2
T -1.9
0
350
DEPTH (M)

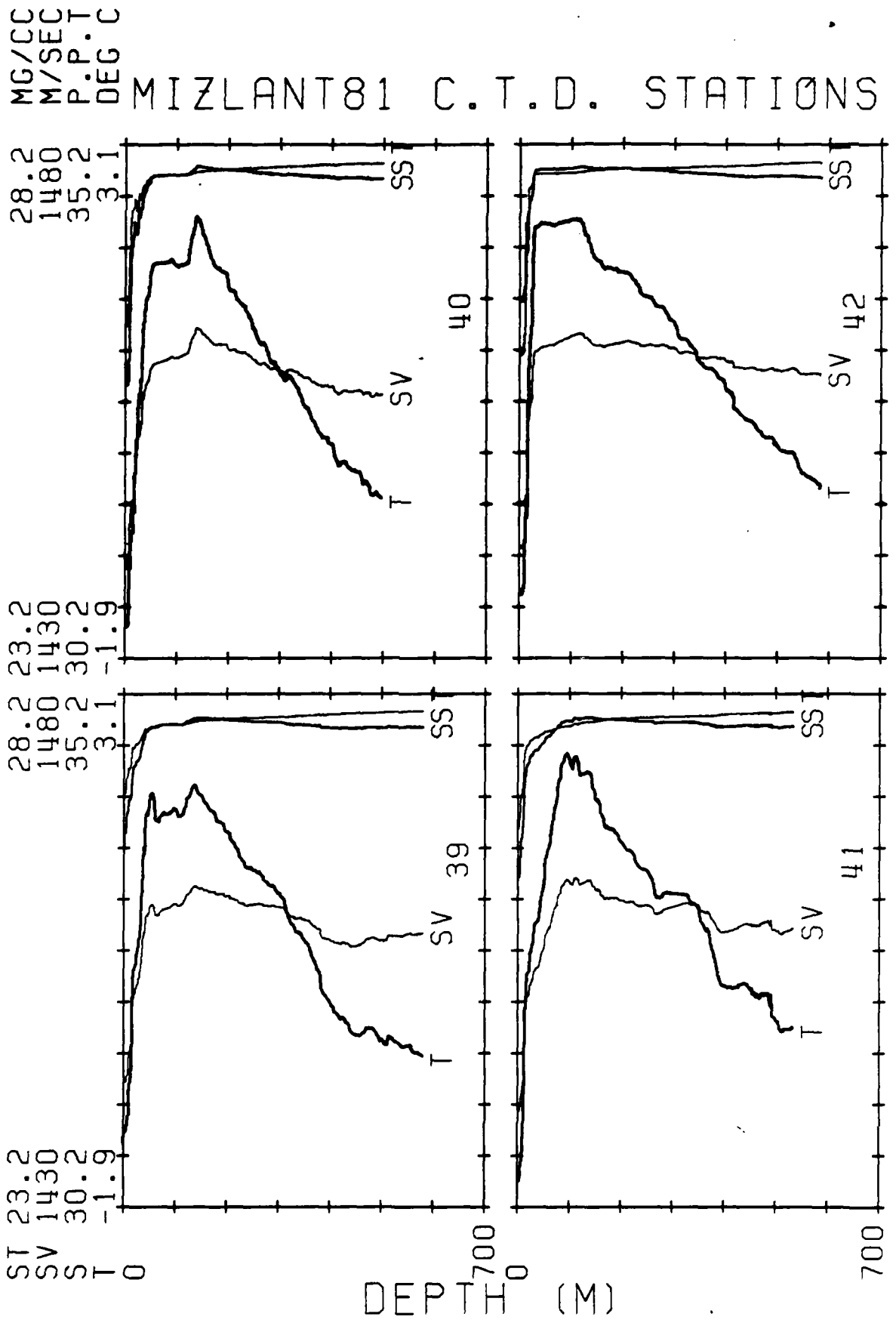

ST 23.2 28.2
SV 1430 1480
S 30.2 35.2
T -1.9 3.1
0
350
T
V
S
ST
23-19
23-20
23-21
23-22
DEPTH (M)
MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C

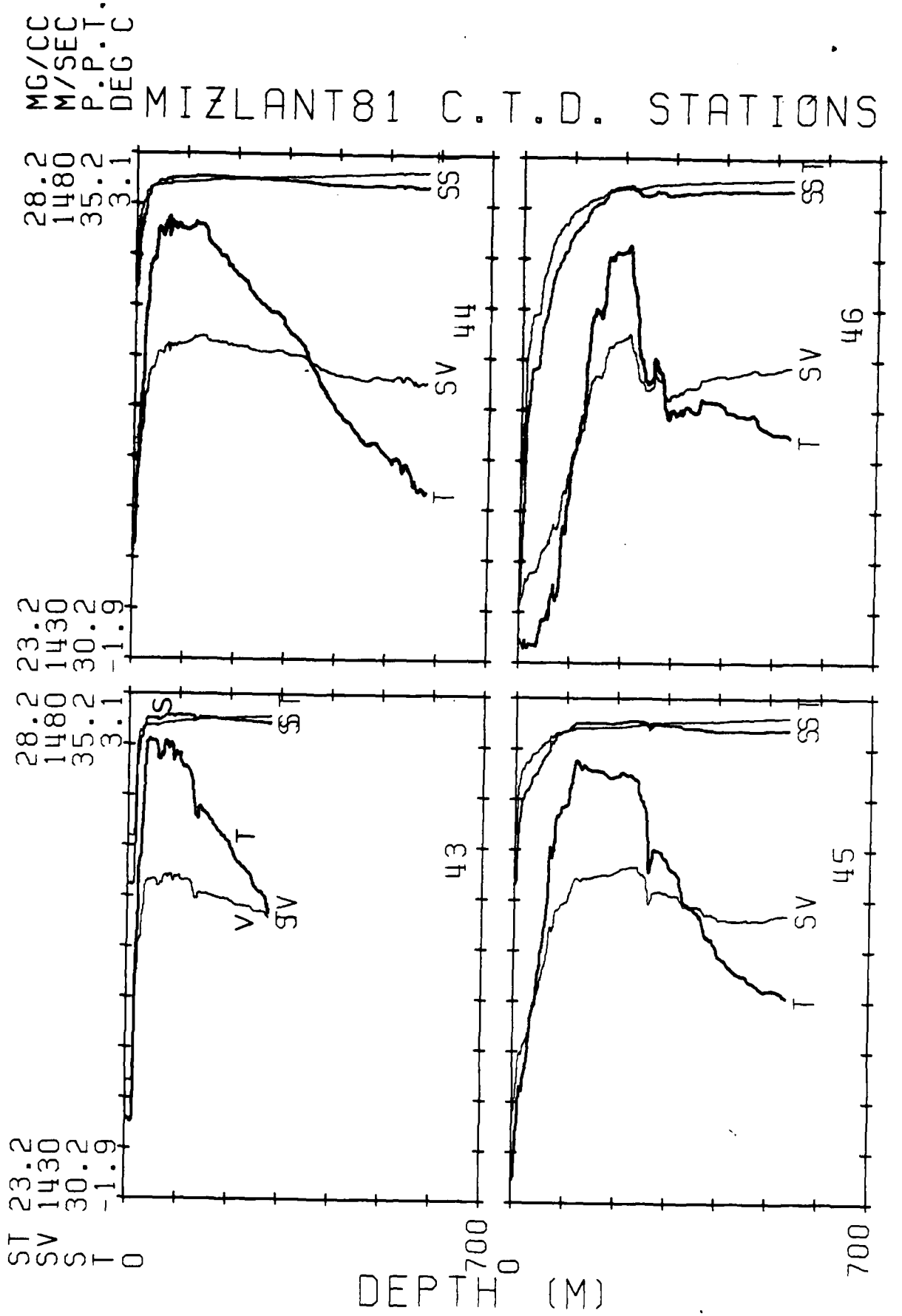

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
ST
S
V
T
24
26
23-23
25
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST 23.2
SV 1430
S 30.2
T -1.9
0
350
DEPTH (M)

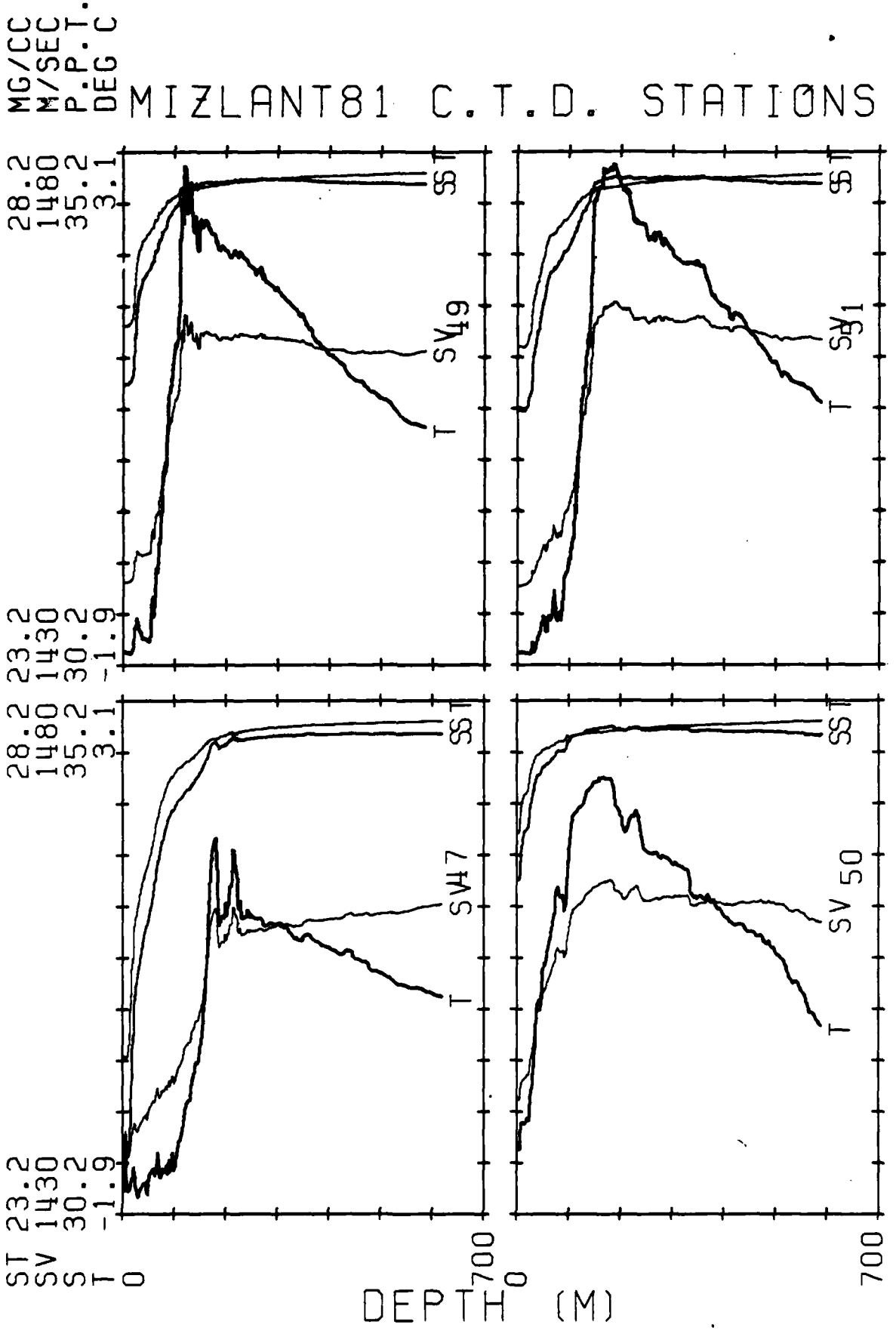

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
ST
SV
S
T
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
28
30
26
29
0
350
DEPTH (M)

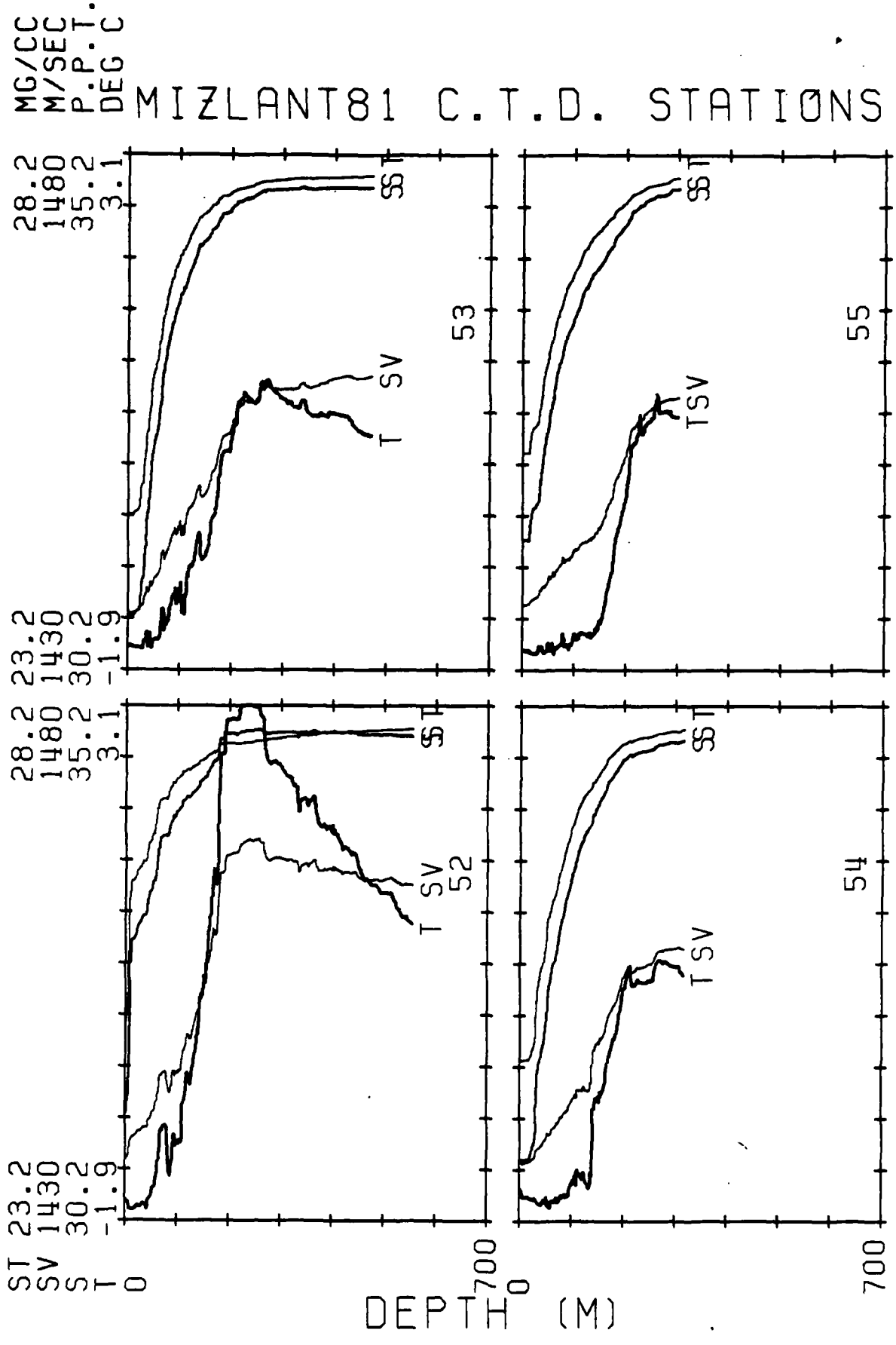

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
SS
SV
T
32
34
31
33
23.2
1430
30.2
-1.9
ST
SV
S
T
0
700
DEPTH (M)

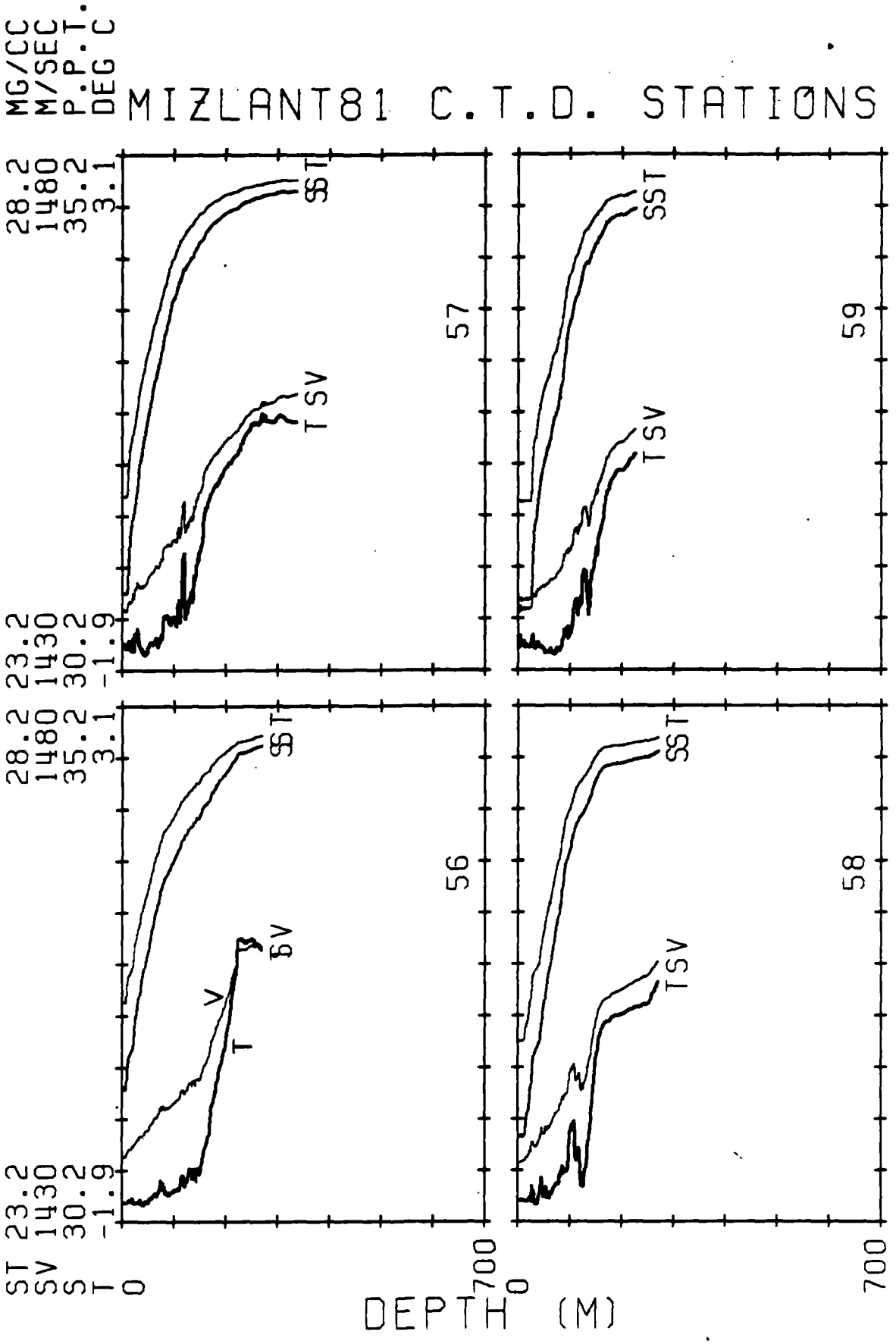

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST
SV
S
T
36
38
35
37
0
700
DEPTH (M)

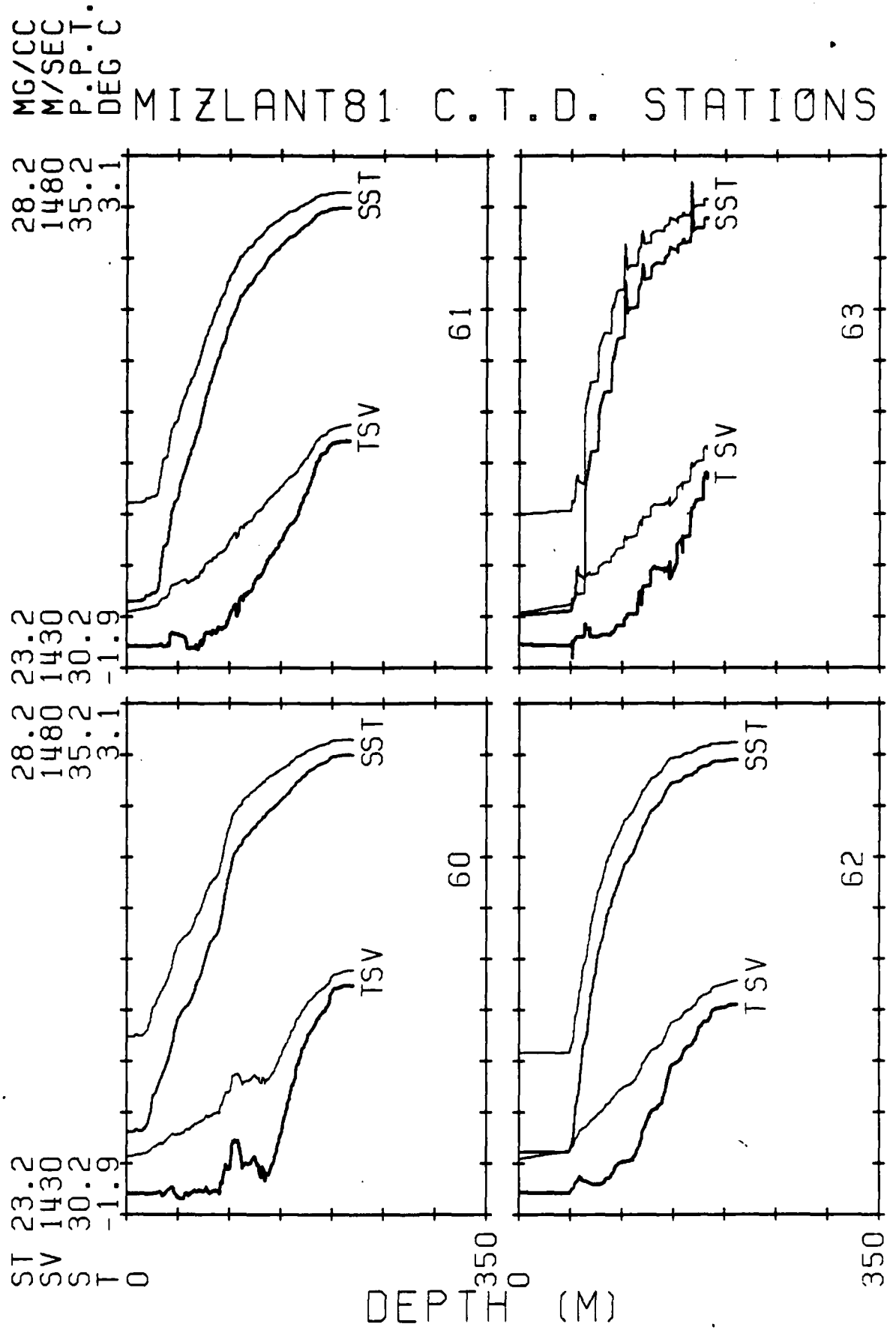

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
SS
SV
T
40
42
39
41
23.2
1430
30.2
-1.9
ST
SV
S
T
0
700
DEPTH (M)

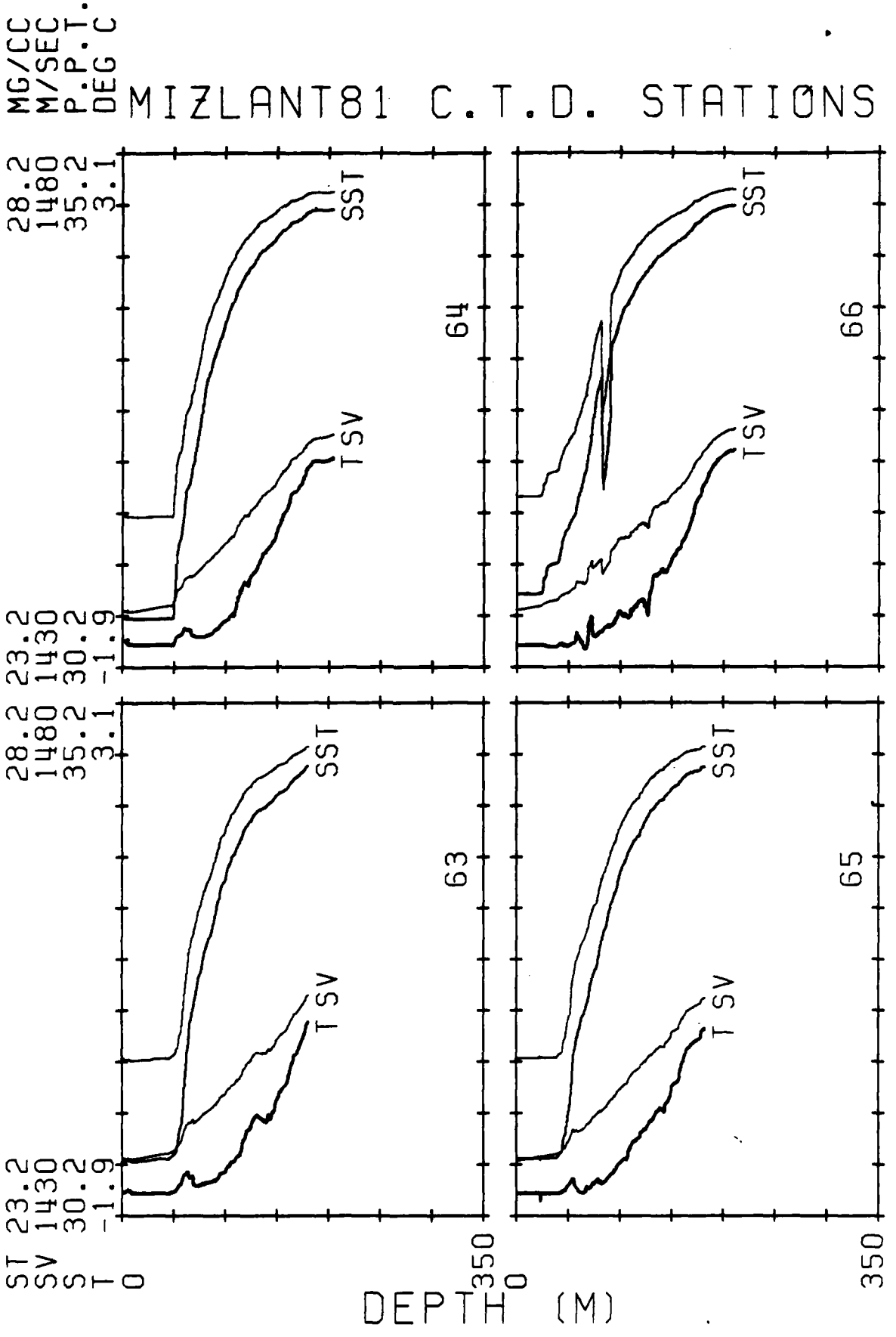

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
SS
SV
T
44
46
43
45
ST
SV
S
T
0
700
DEPTH (M)

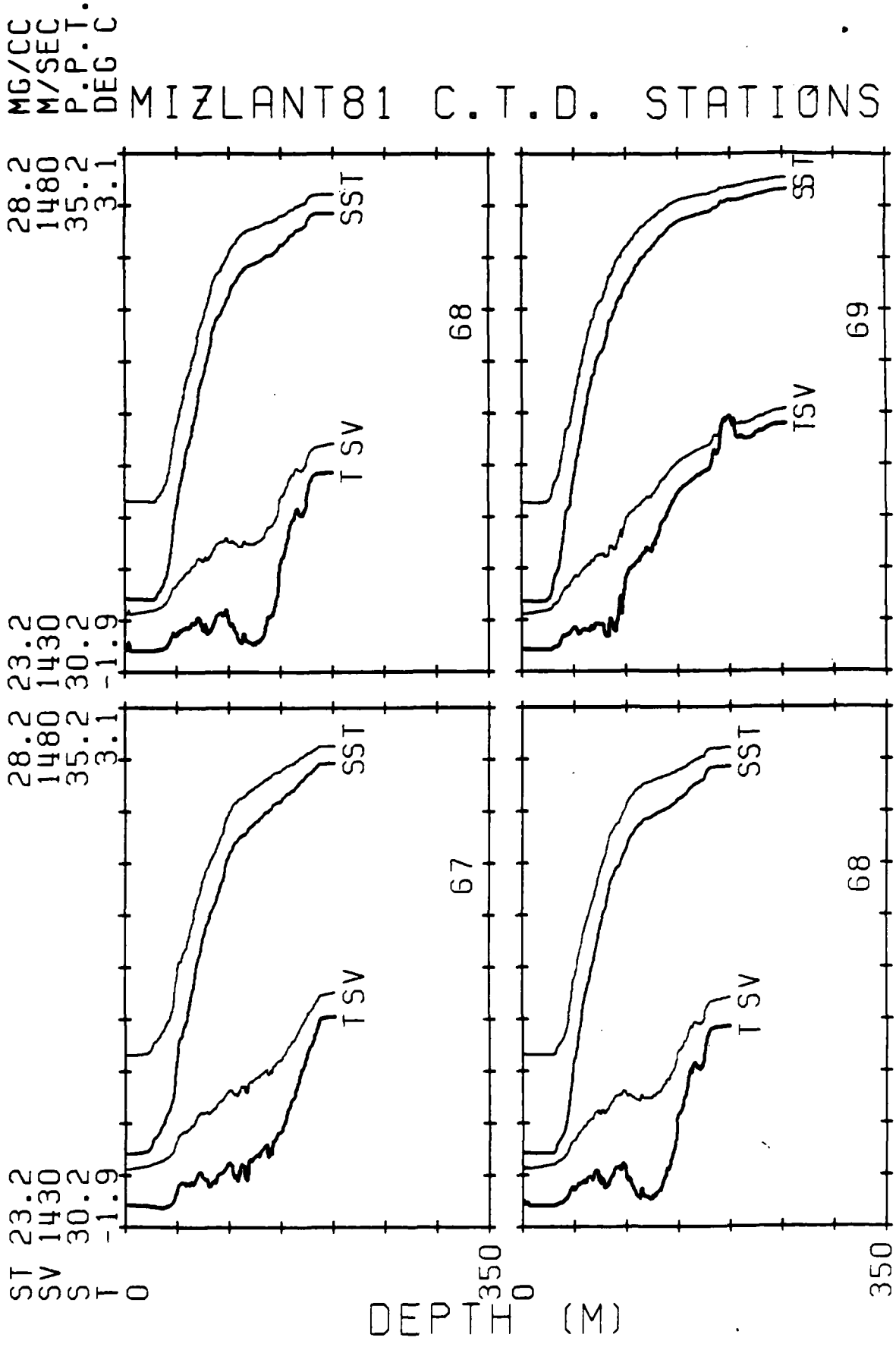

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
SS
SV
T
49
1
47
50
23.2
1430
30.2
-1.9
ST
SV
S
T
0
700
DEPTH (M)

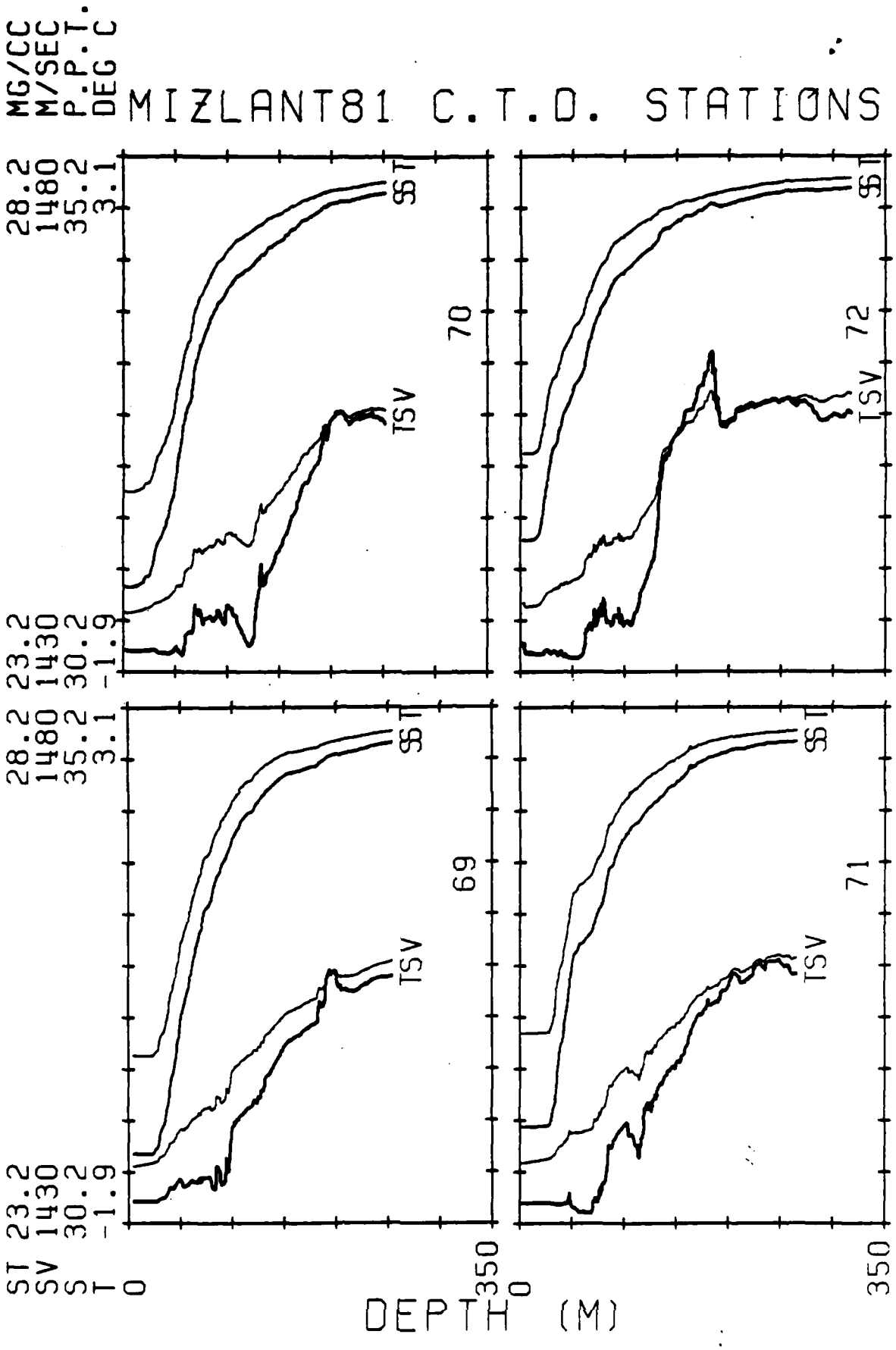

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST
SV
S
T
0
700
DEPTH (M)
T SV
53
52
54
55

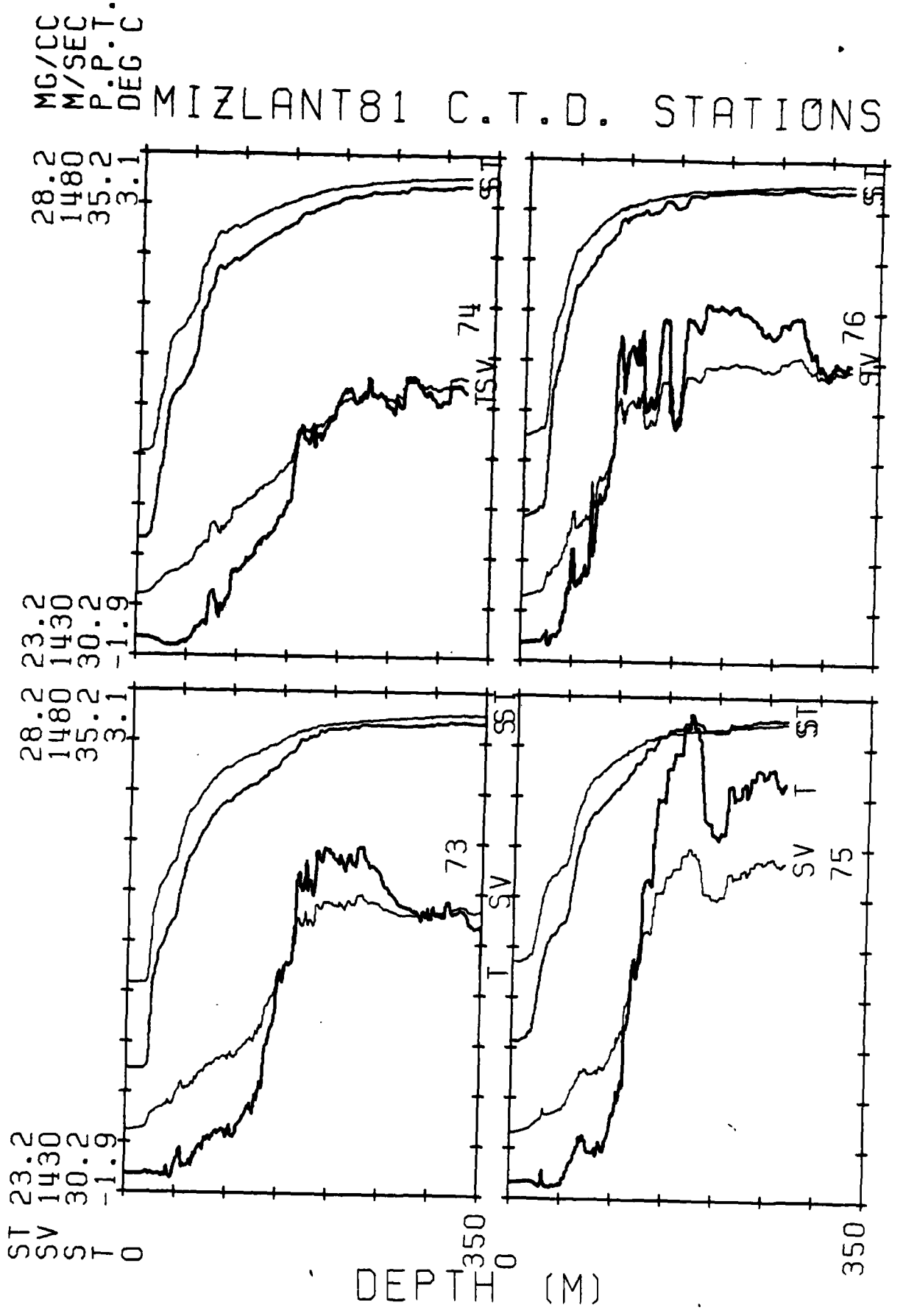

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST
SV
S
T
0
700
DEPTH (M)
SST
TSV
SV
T
57
59
56
58

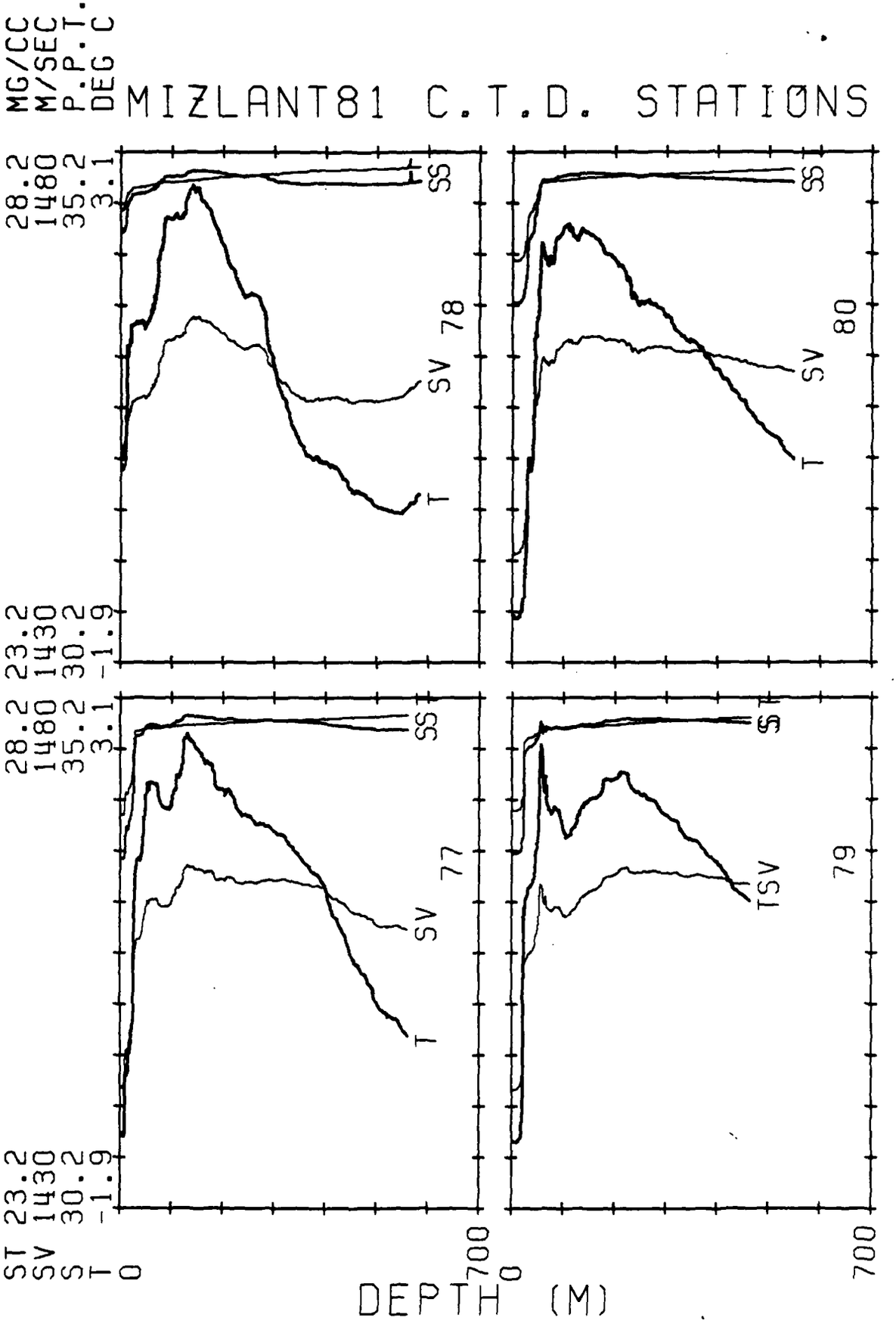

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
SST
TSV
61
63
60
62
23.2
1430
30.2
-1.9
ST
SV
S
T
0
350
DEPTH (M)

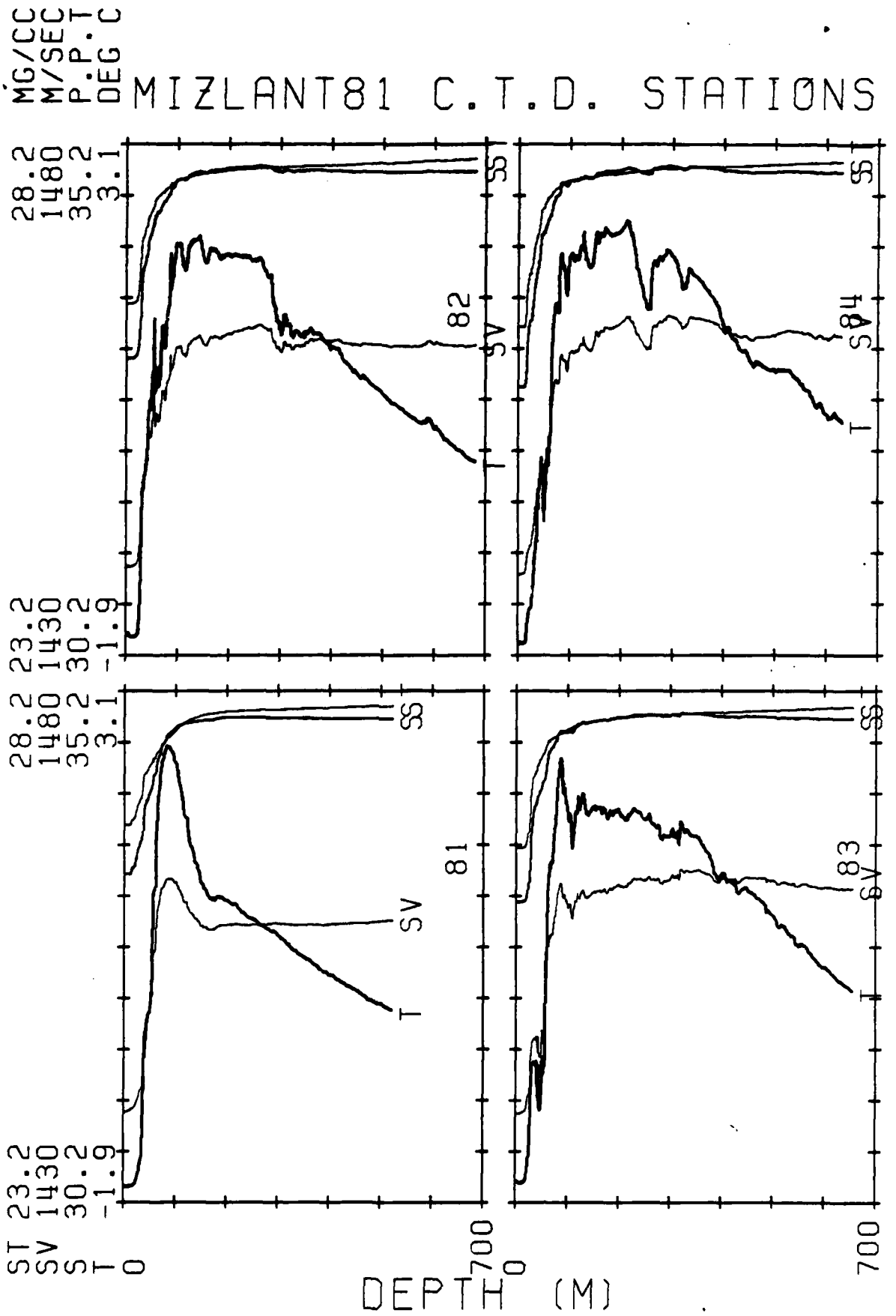

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
SST
TSV
64
66
63
65
23.2
1430
30.2
-1.9
ST
SV
S
T
0
350
DEPTH (M)

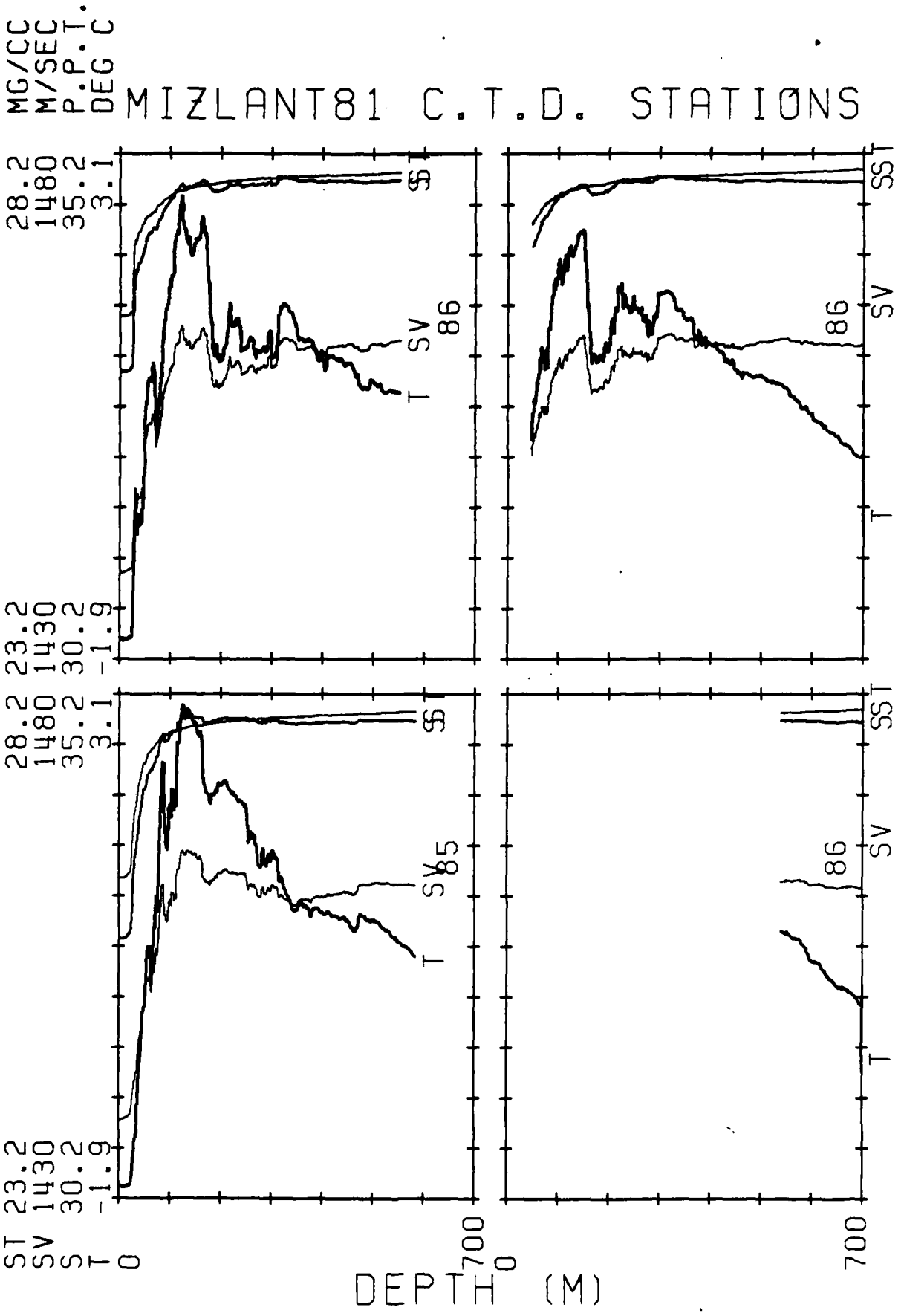

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
SST
TSV
68
28.2 23.2
1480 1430
35.2 30.2
3.1 -1.9
69
67
68
ST 23.2
SV 1430
S 30.2
T -1.9
0
350
DEPTH (M)

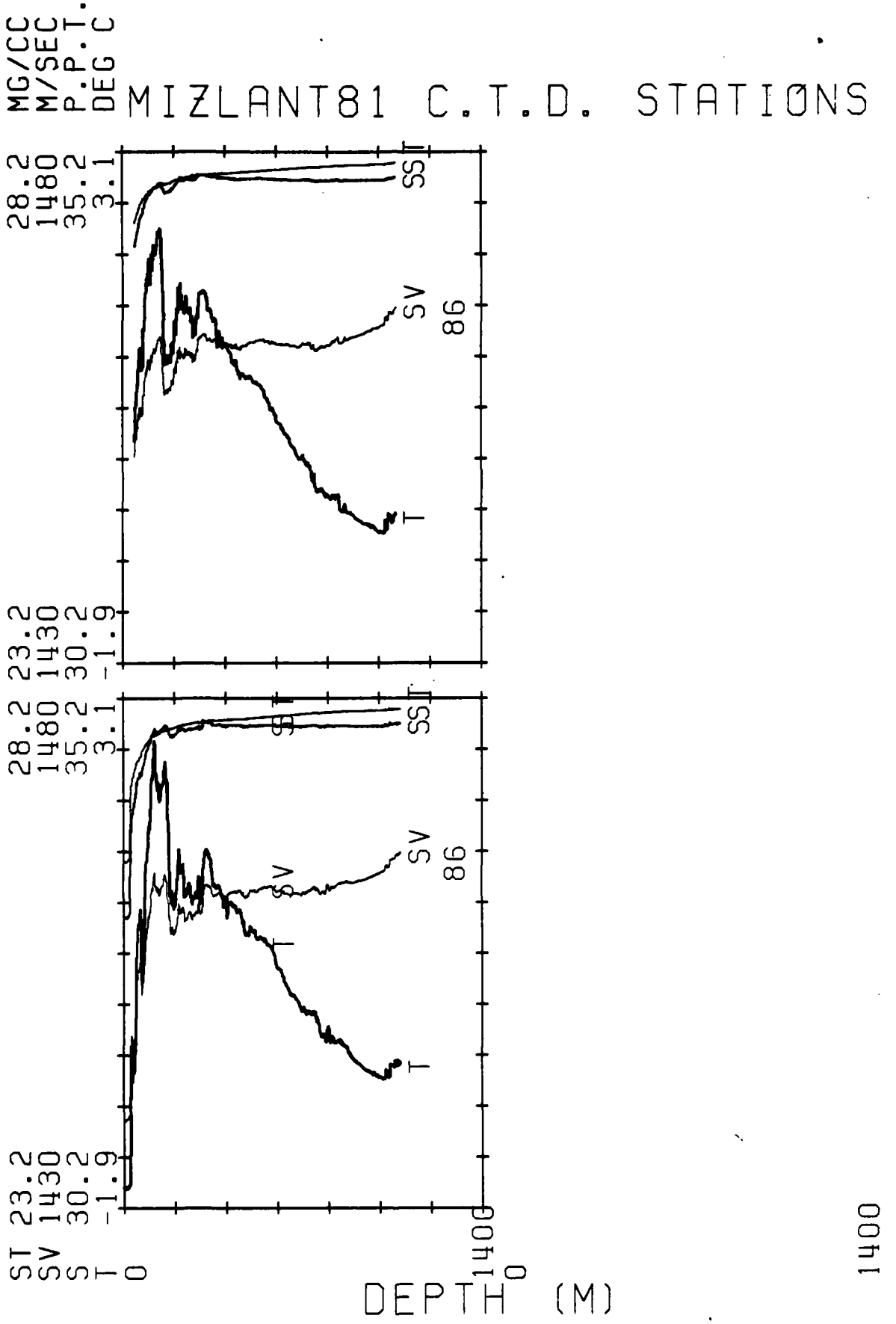

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
SST
TSV
70
72
69
71
23.2
1430
30.2
-1.9
ST
SV
S
T
0
350
DEPTH (M)

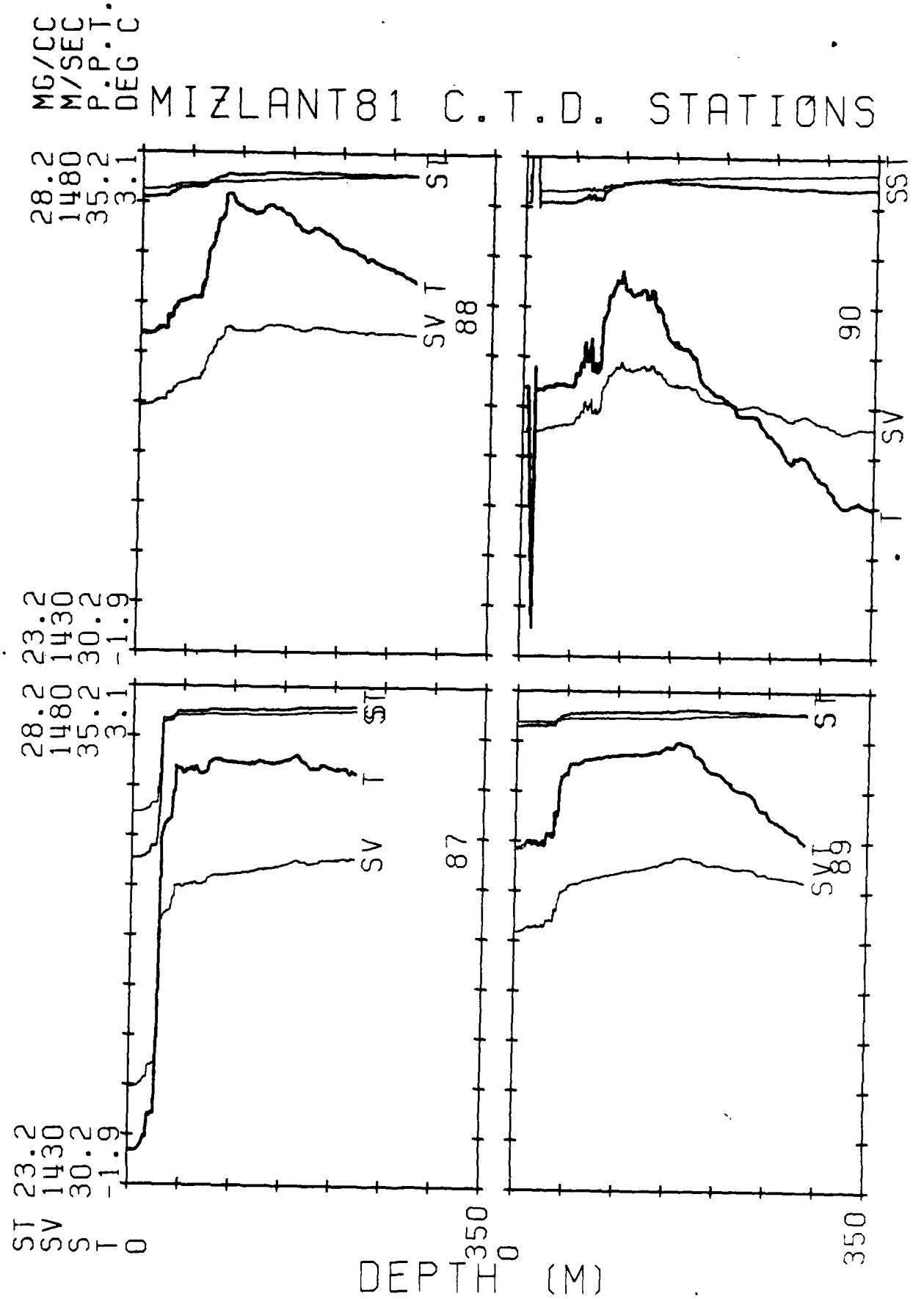

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST
SV
S
T
74
76
73
75
0
350
DEPTH (M)

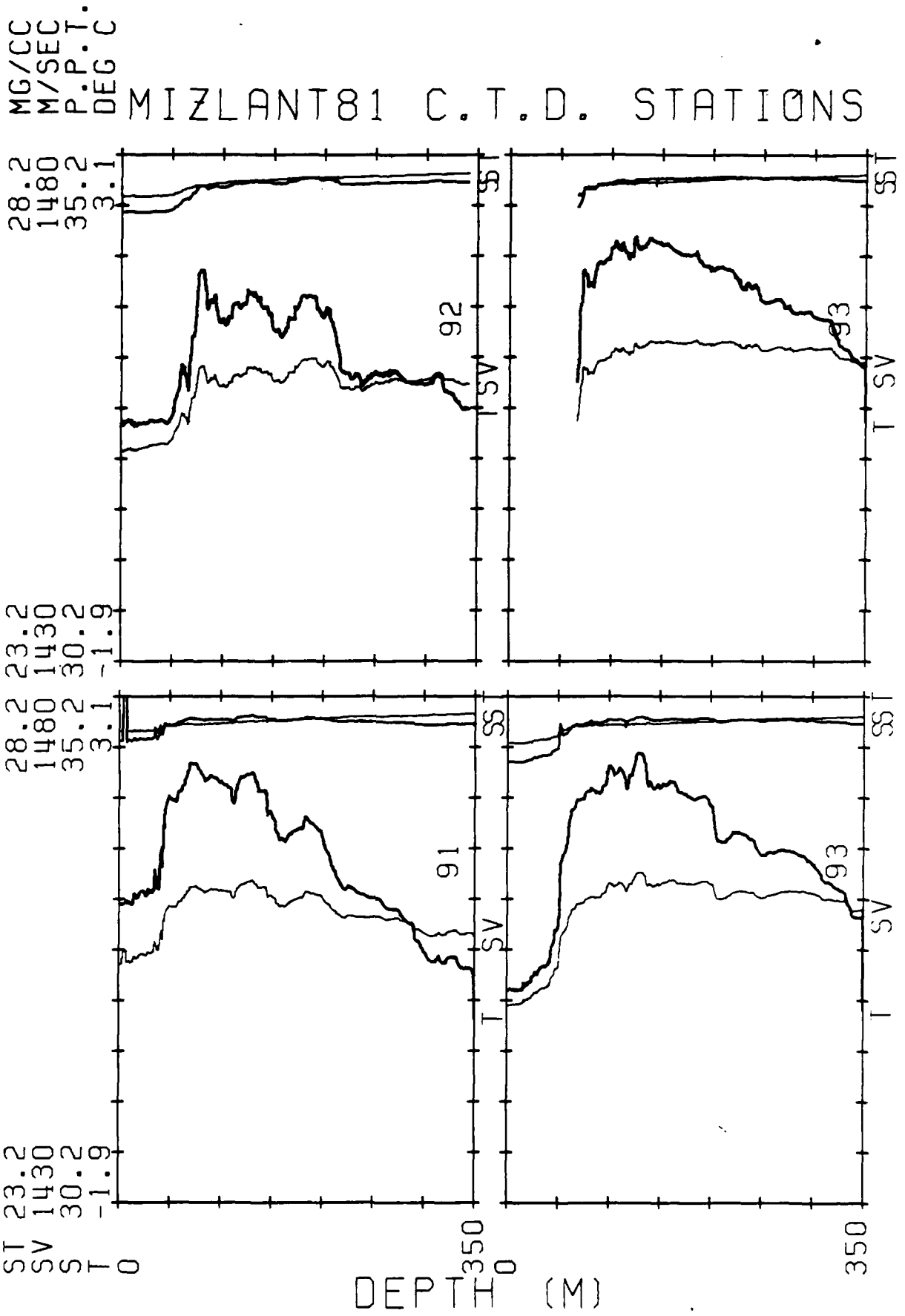

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
SS
SV
T
78
80
77
79
23.2
1430
30.2
-1.9
TSV
ST
SV
T
0
700
DEPTH (M)

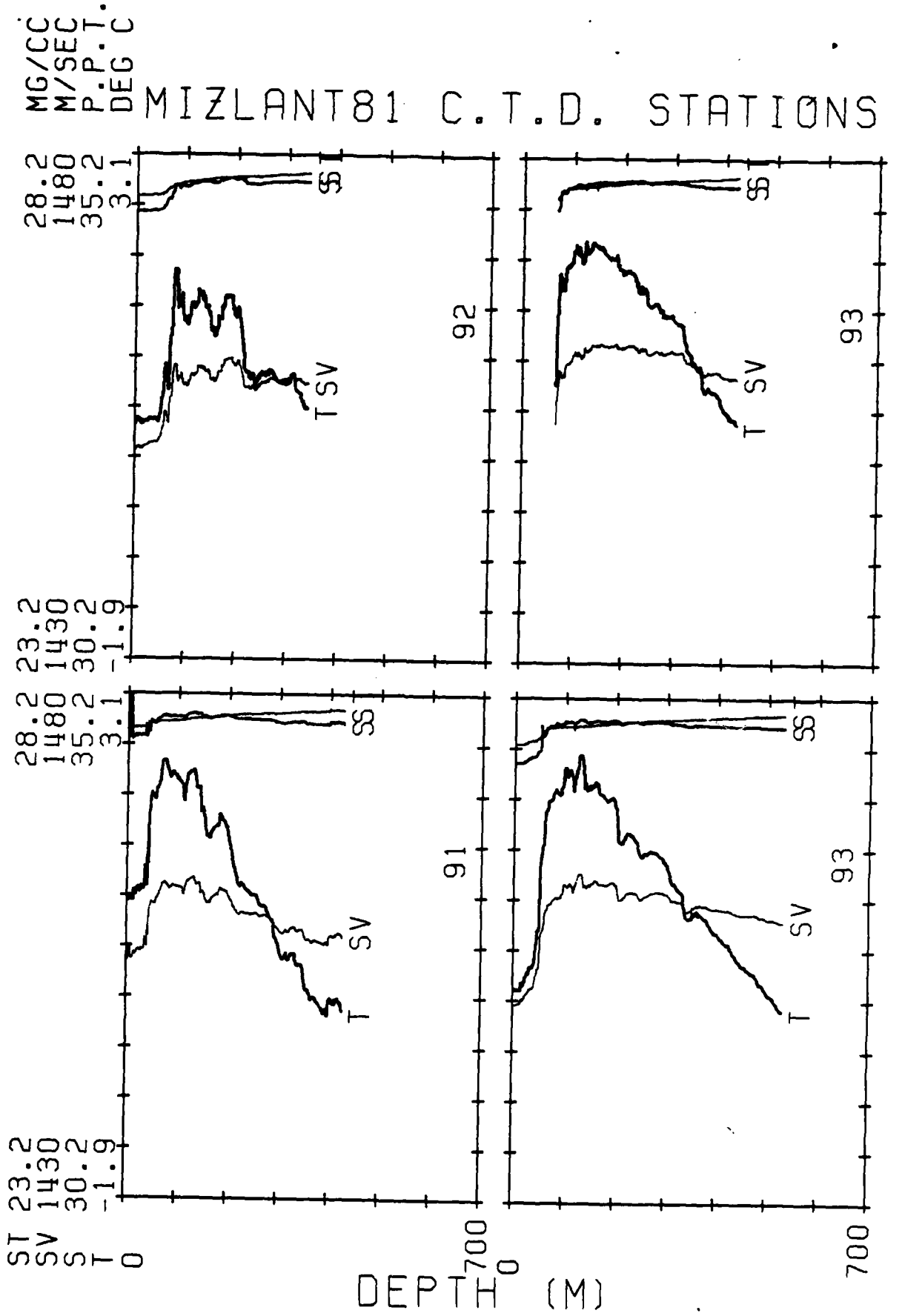

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST
SV
S
T
SS
SV
T
81
82
83
84
0
700
DEPTH (M)

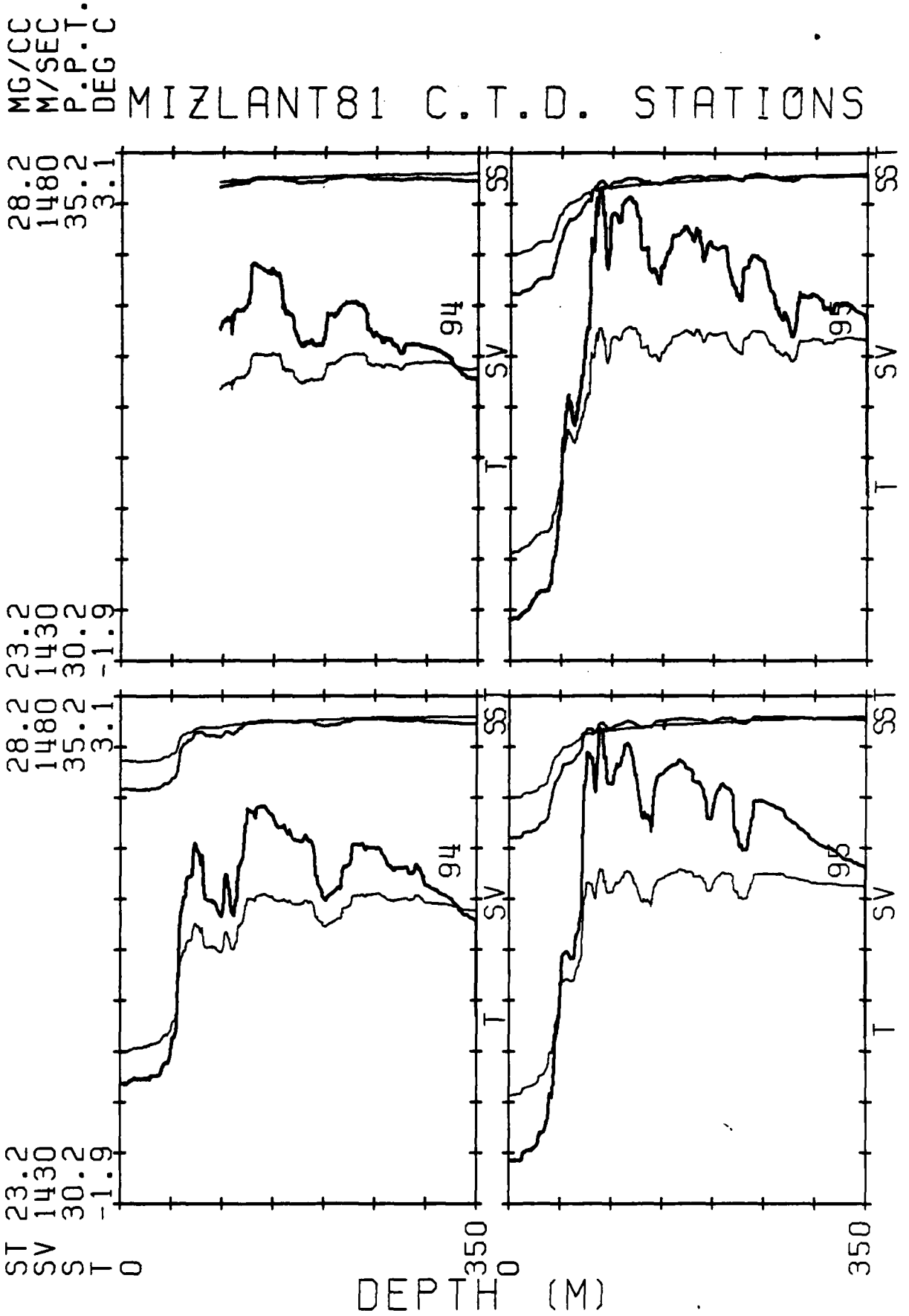

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST
SV
S
T
SST
SV
T
86
85
0
700
DEPTH (M)

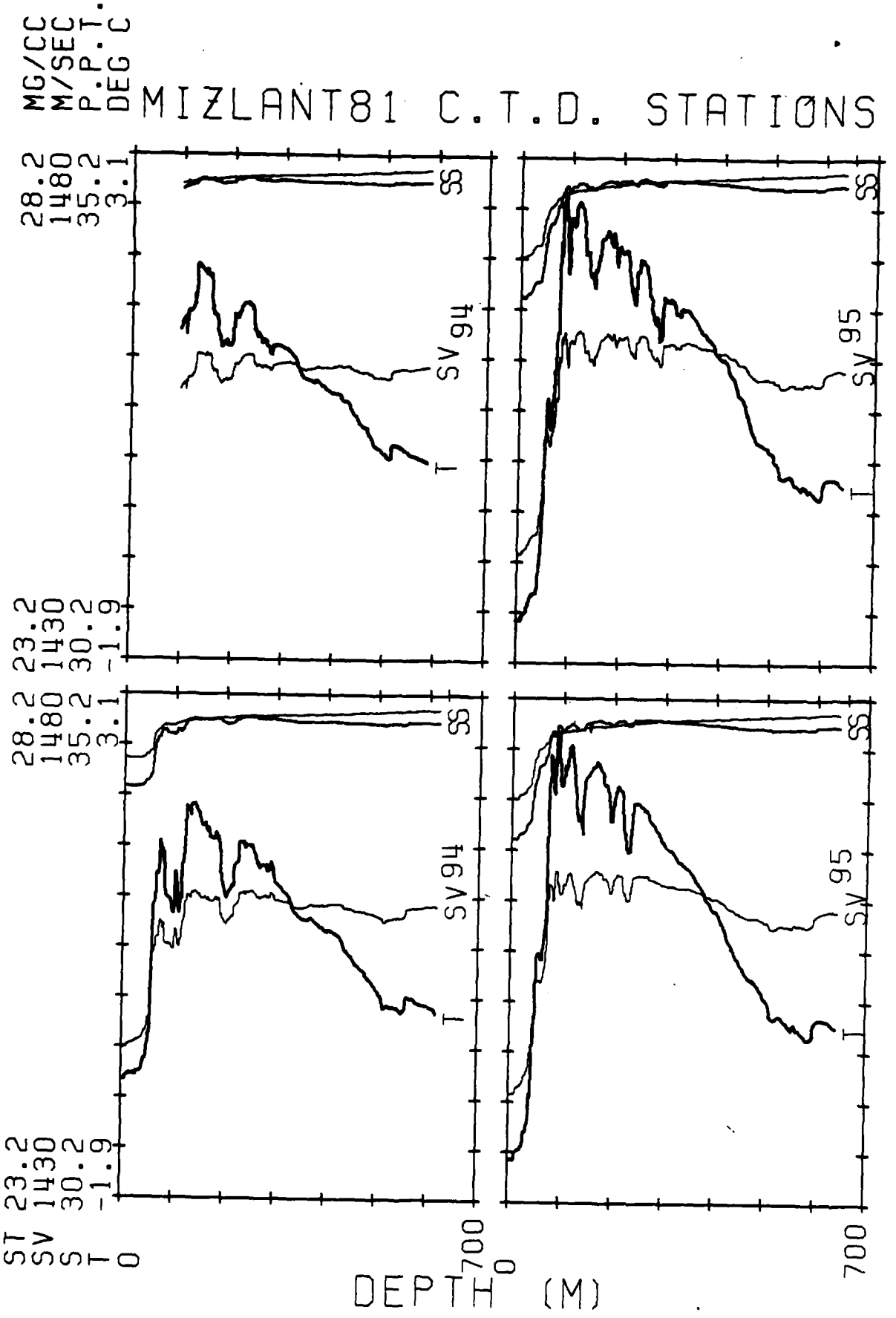

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
SS
SV
86
T
28.2 23.2
1480 1430
35.2 30.2
3.1 -1.9
SS
SV
86
δV
T
ST 23.2
SV 1430
S 30.2
T -1.9
0
1400
DEPTH (M)
0
1400

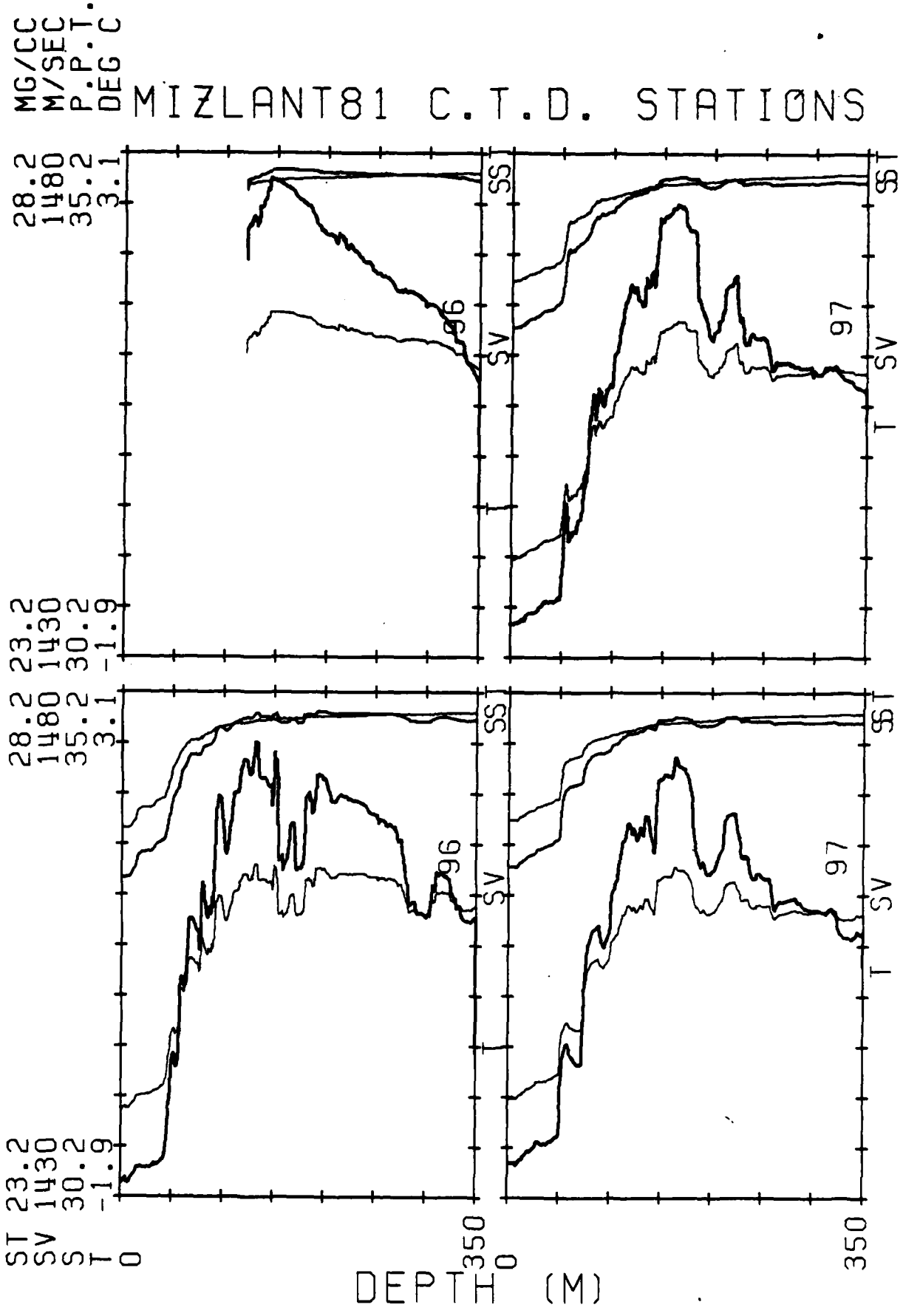

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
ST
SV
T
88
90
87
89
23.2
1430
30.2
-1.9
0
350
DEPTH (M)

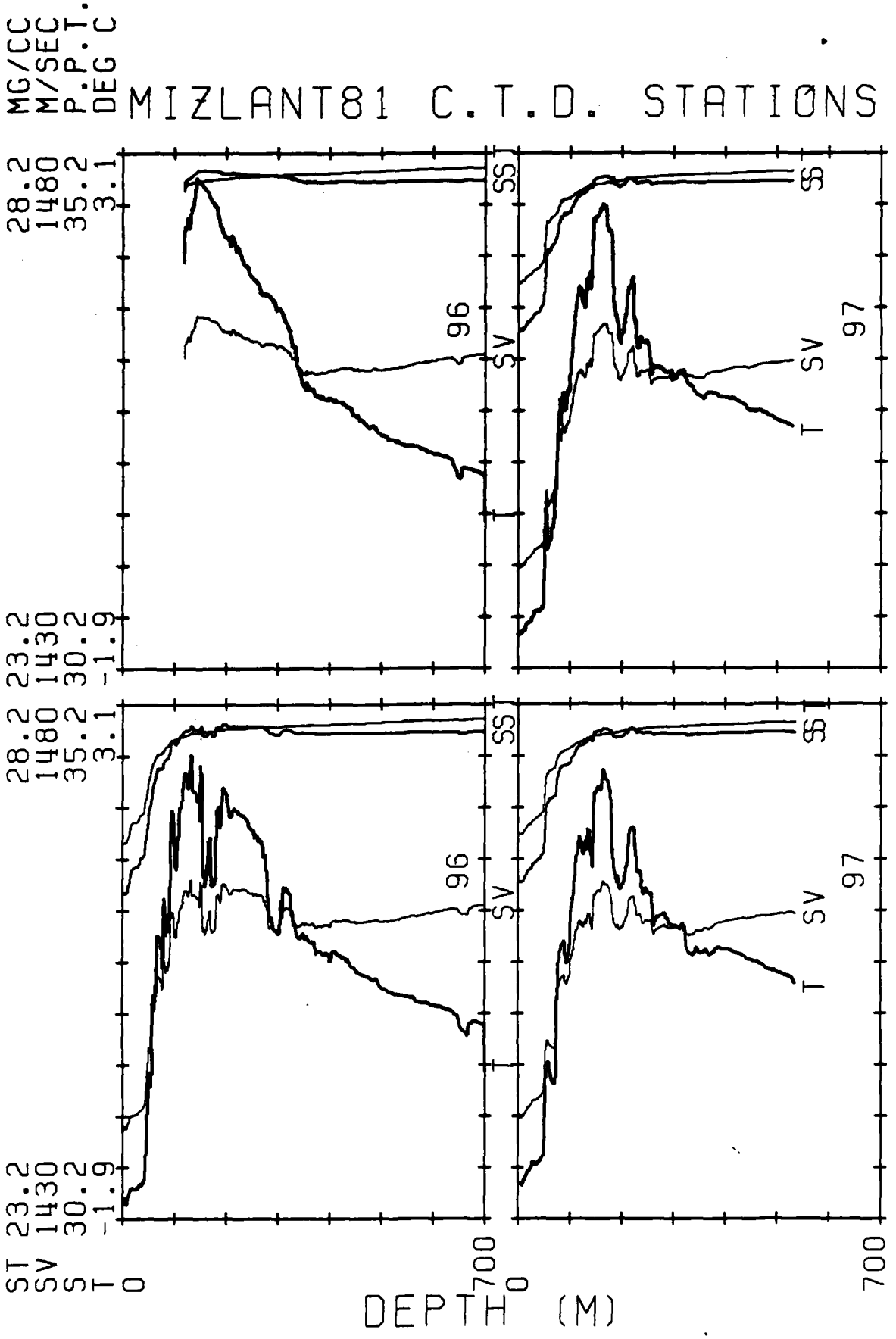

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST
SV
S
T
0
350
91
92
93
DEPTH (M)

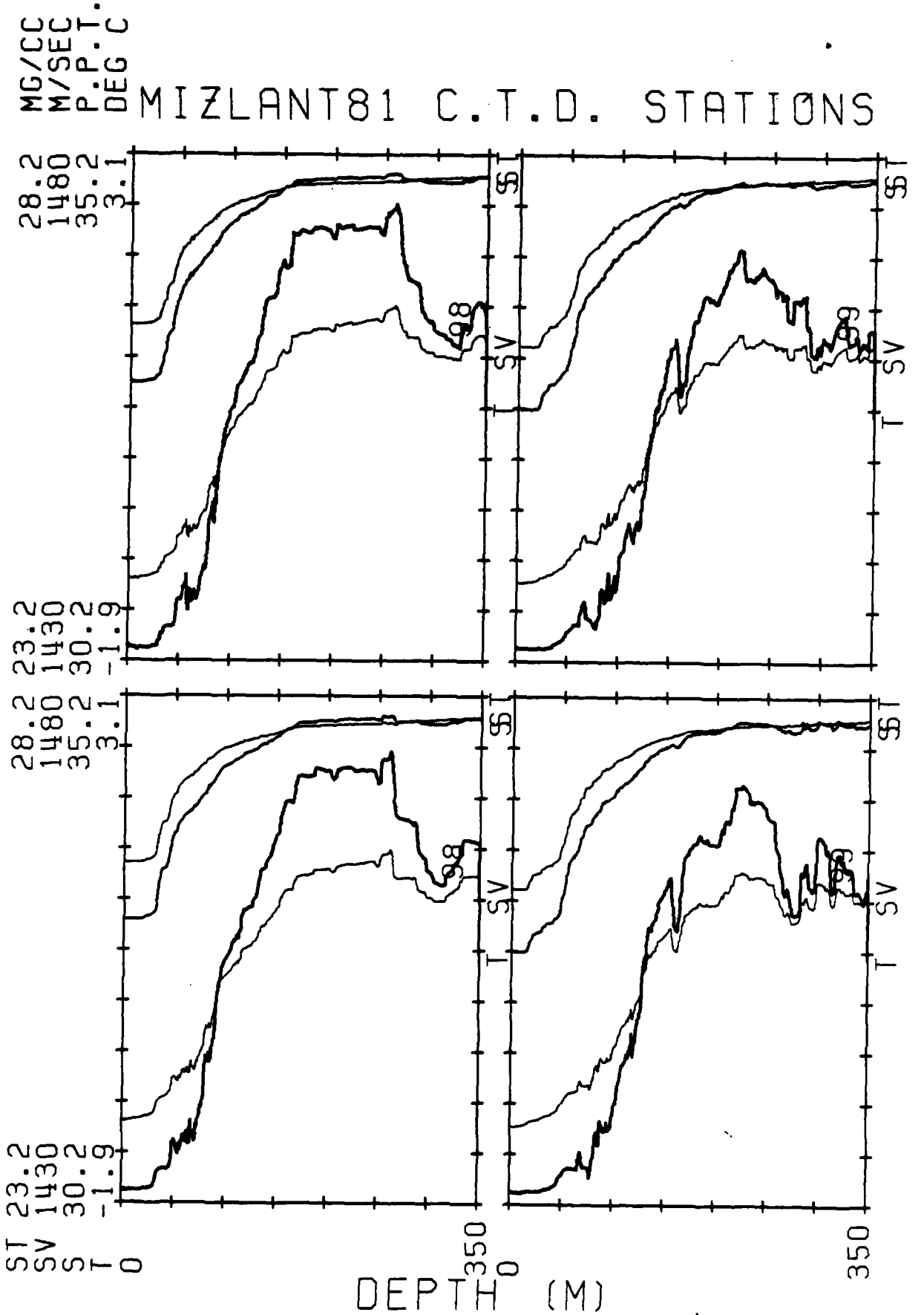

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
SS
TSV
92
93
91
23.2
1430
30.2
-1.9
ST
SV
S
T
0
700
DEPTH (M)

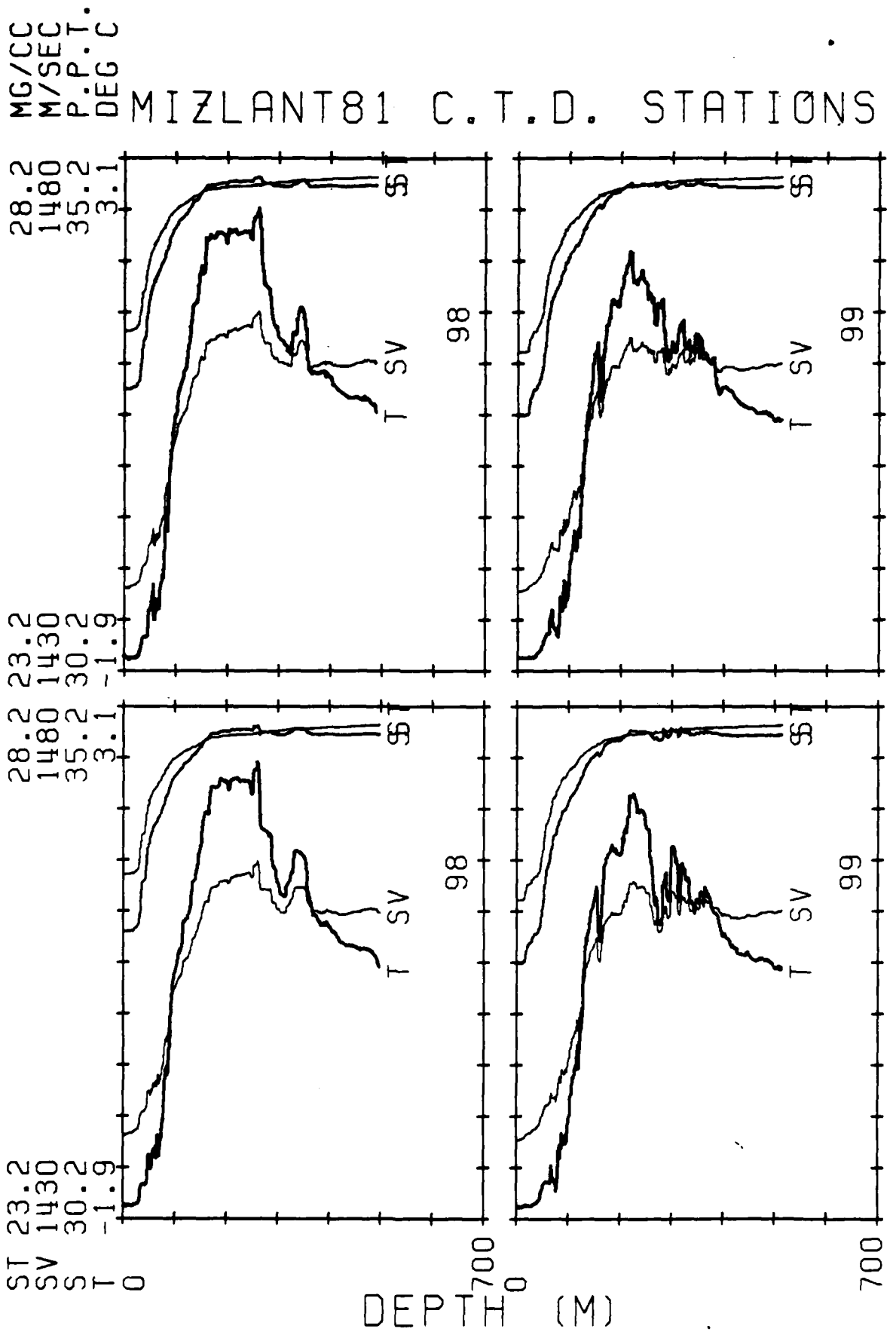

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
SS
SV
T
94
95
ST
SV
S
T
0
350
DEPTH (M)

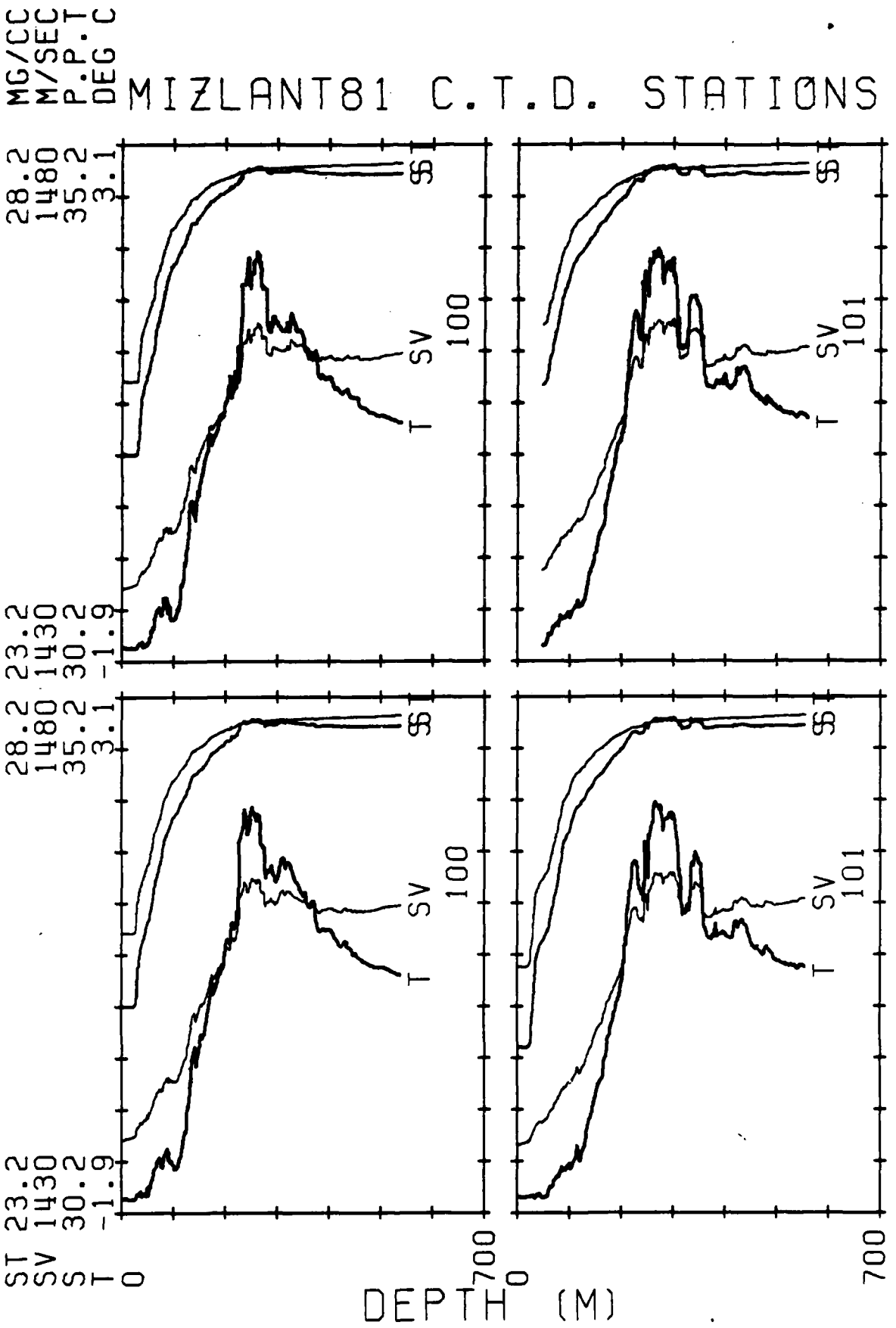

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
SS
SV 94
T
28.2 23.2
1480 1430
35.2 30.2
3.1 -1.9
SS
SV 95
T
ST 23.2
SV 1430
S 30.2
T -1.9
0
700
DEPTH (M)

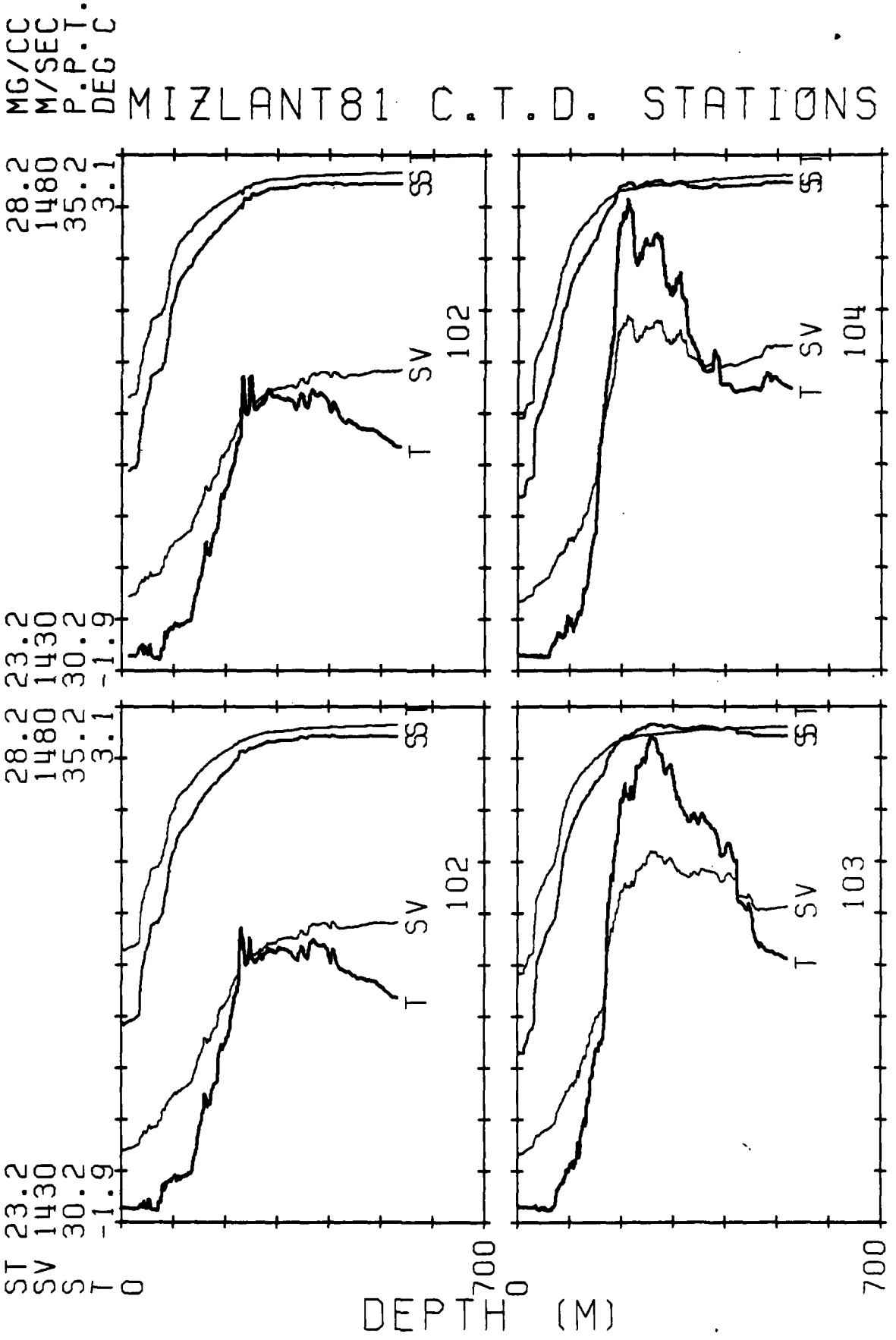

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
SS
SV
T
96
97
ST
SV
S
T
0
350
DEPTH (M)

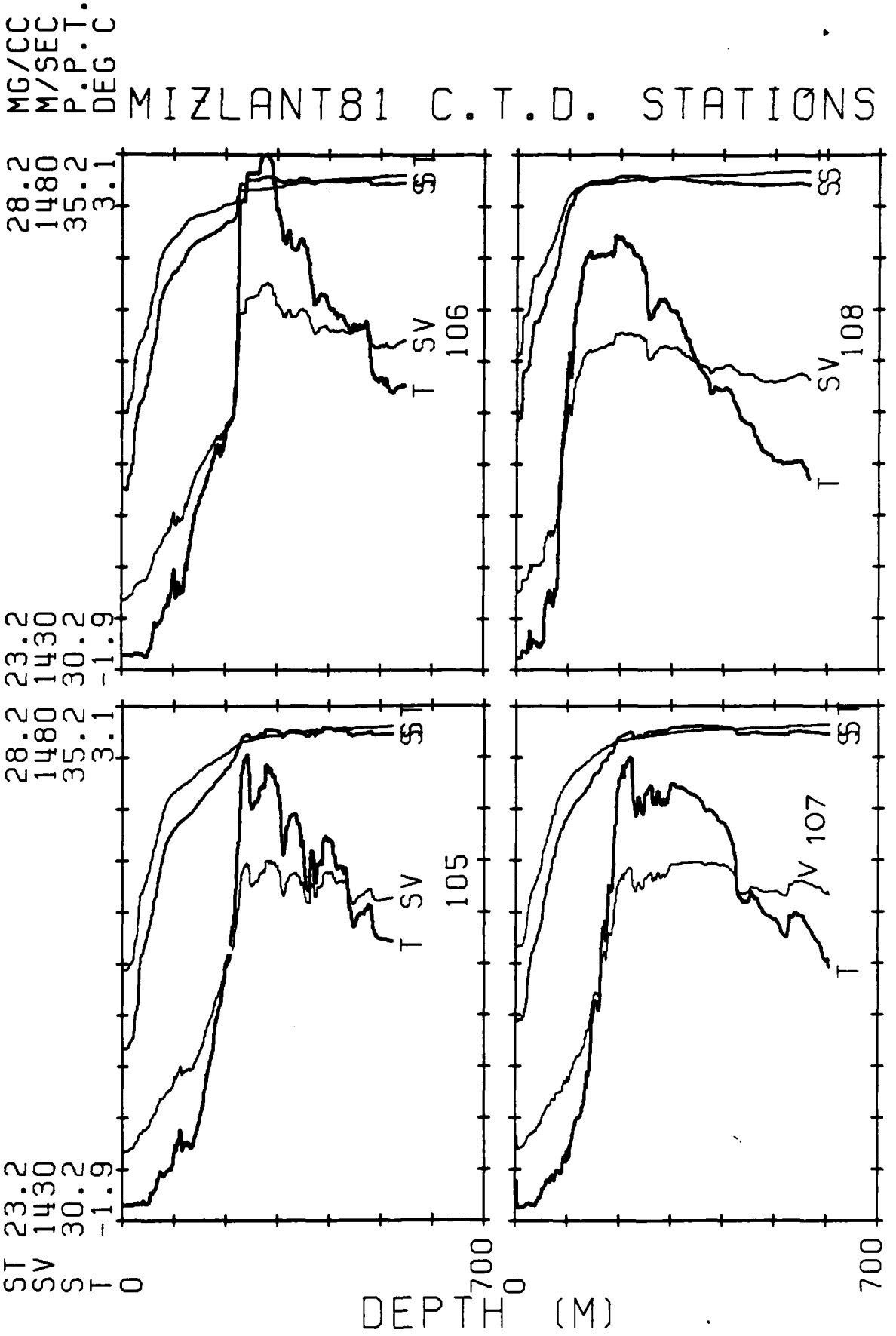

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
28.2 23.2
1480 1430
35.2 30.2
3.1 -1.9
ST 23.2
SV 1430
S 30.2
T -1.9
SS
SV
T
96
97
0
700
DEPTH (M)

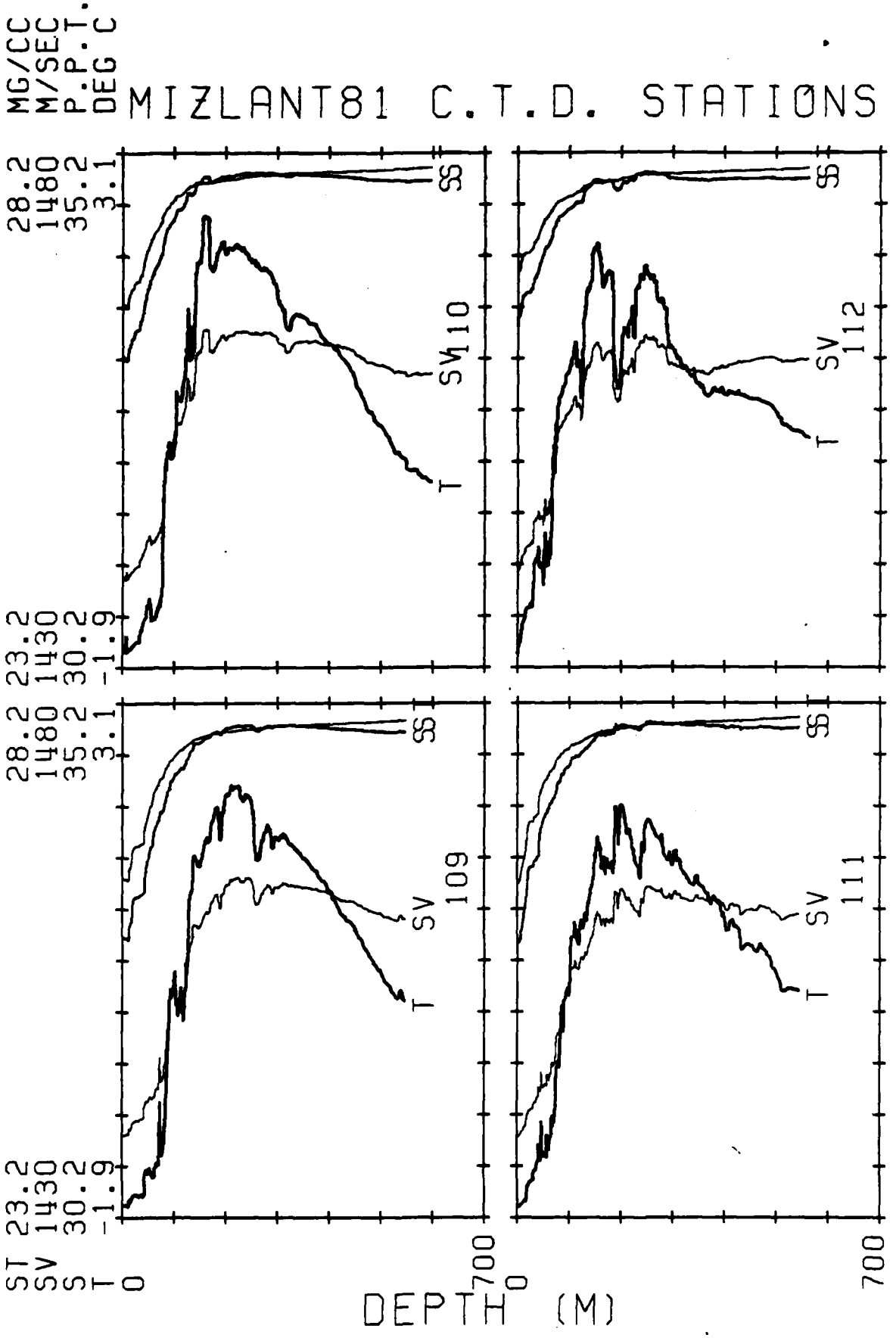

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST
SV
S
T
0
350
DEPTH (M)

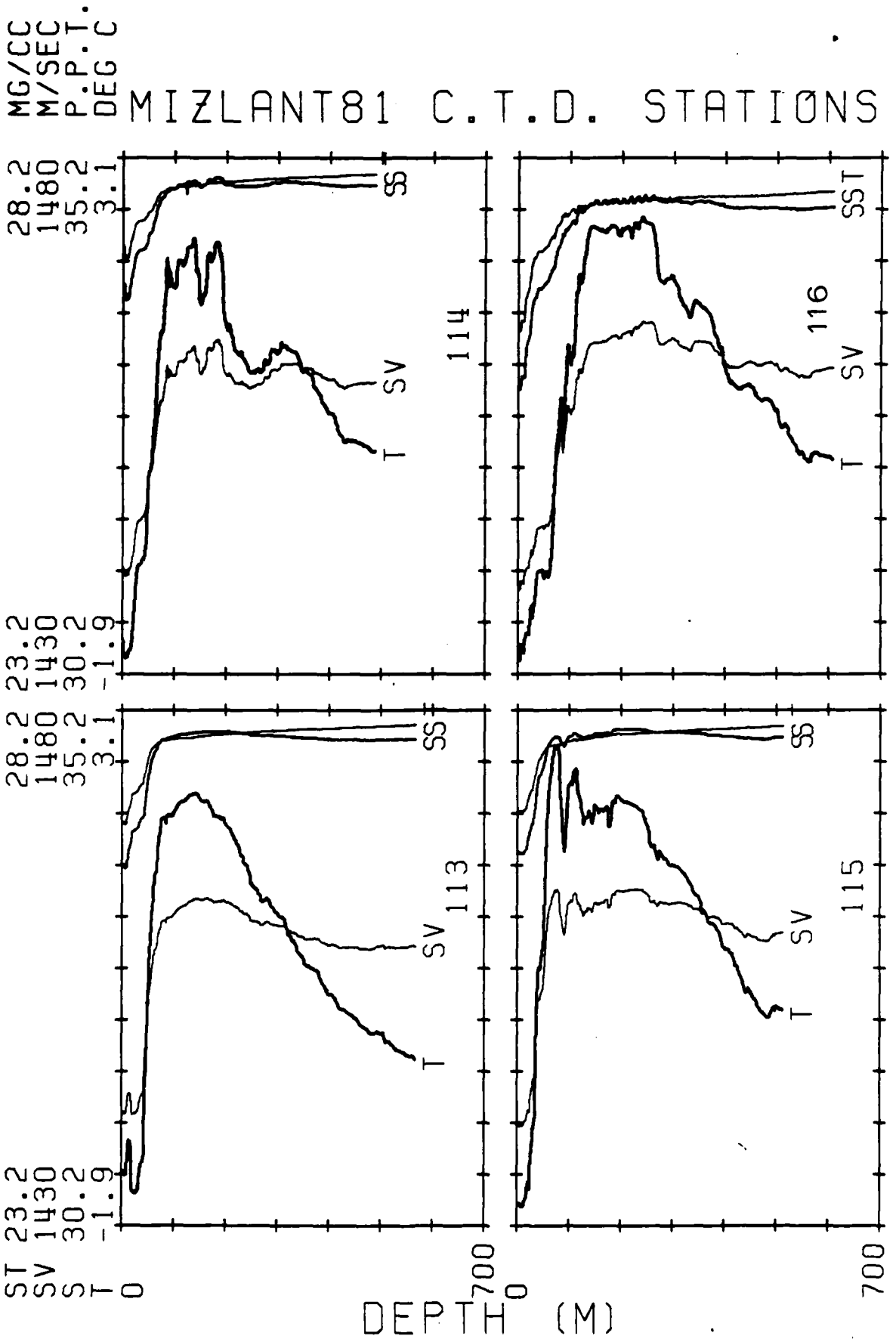

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST
SV
S
T
0
700
98
99
DEPTH (M)

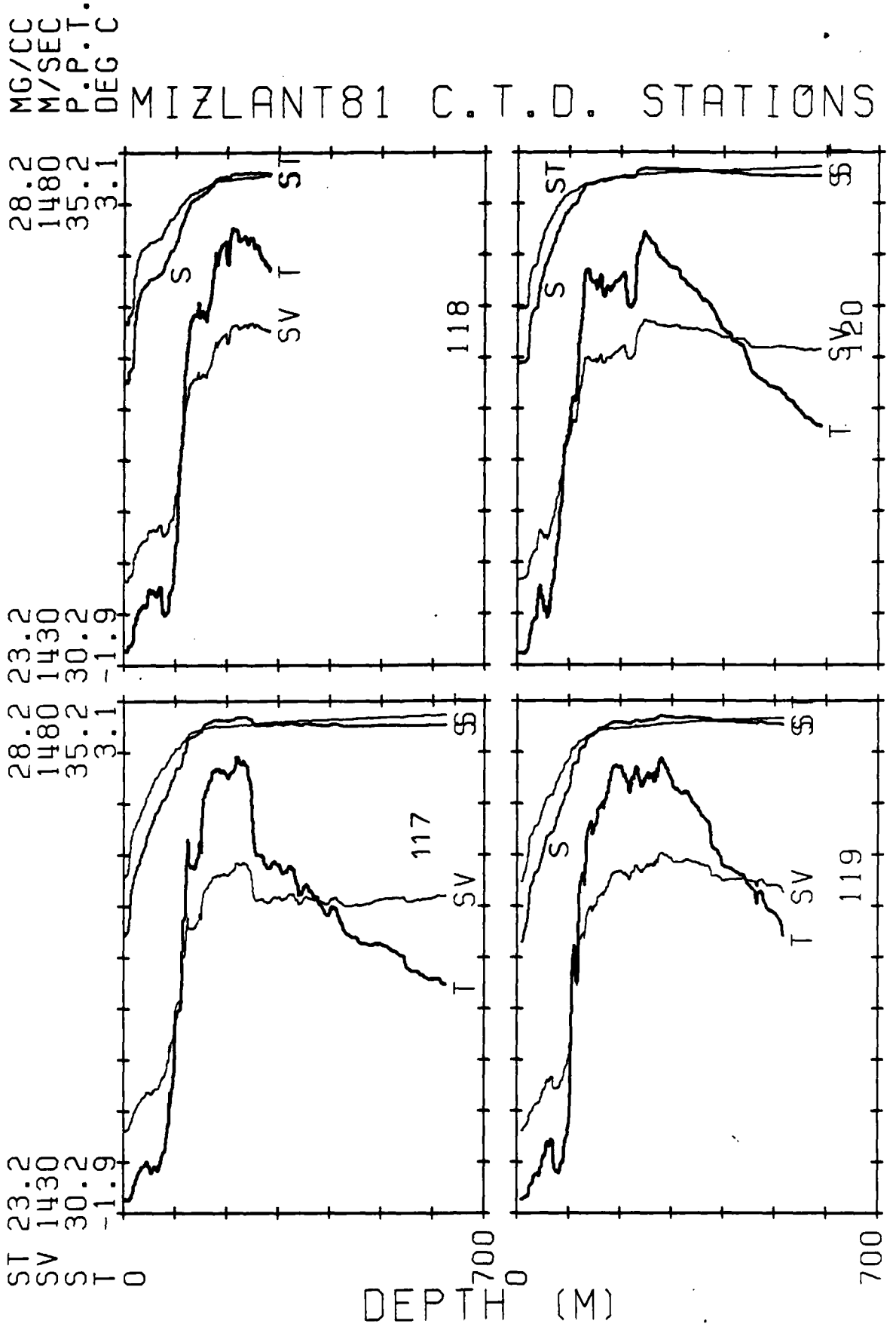

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
SS
SV
T
100
101
ST
SV
S
T
0
700
DEPTH (M)

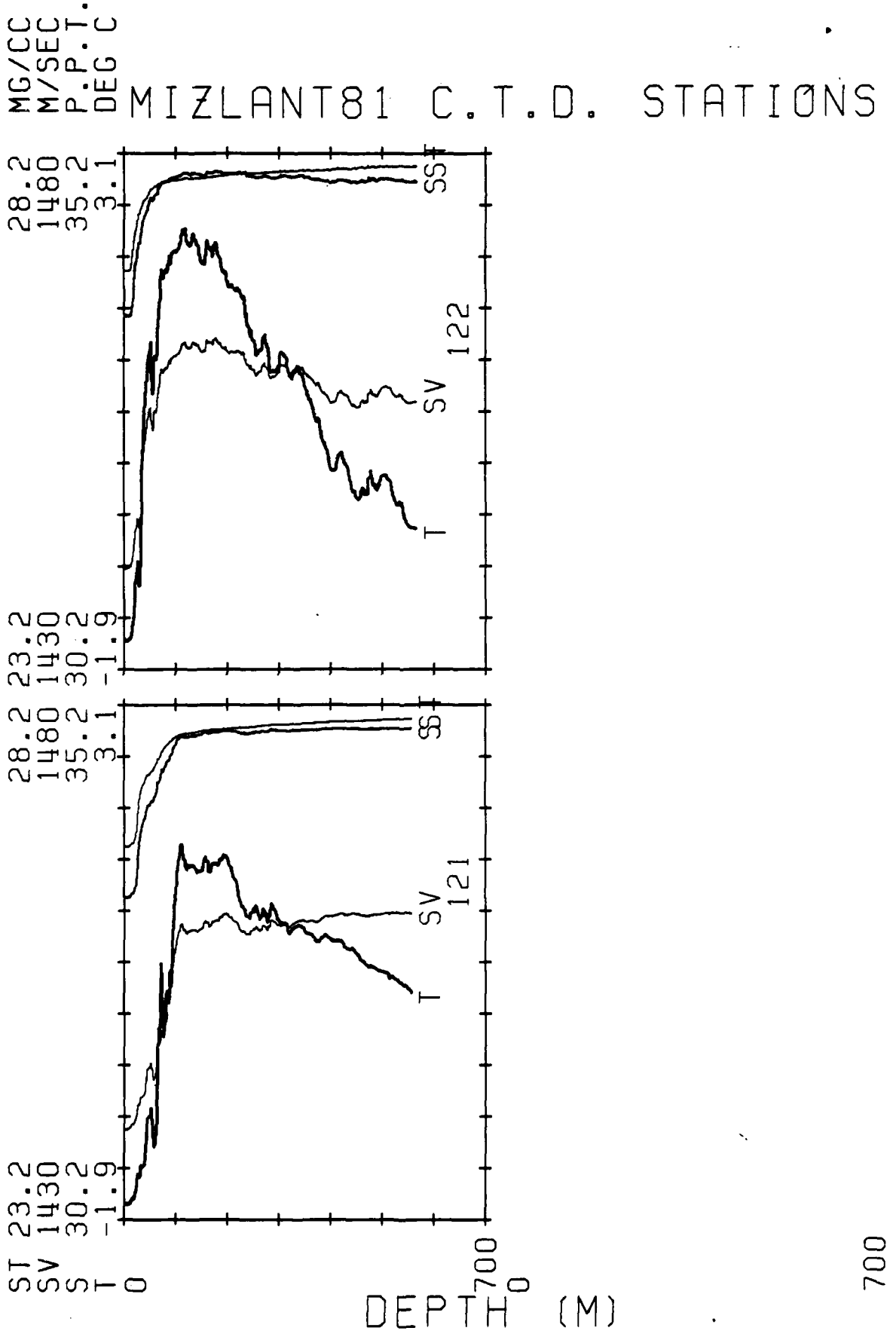

MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST
SV
T
102
104
103
0
700
DEPTH (M)

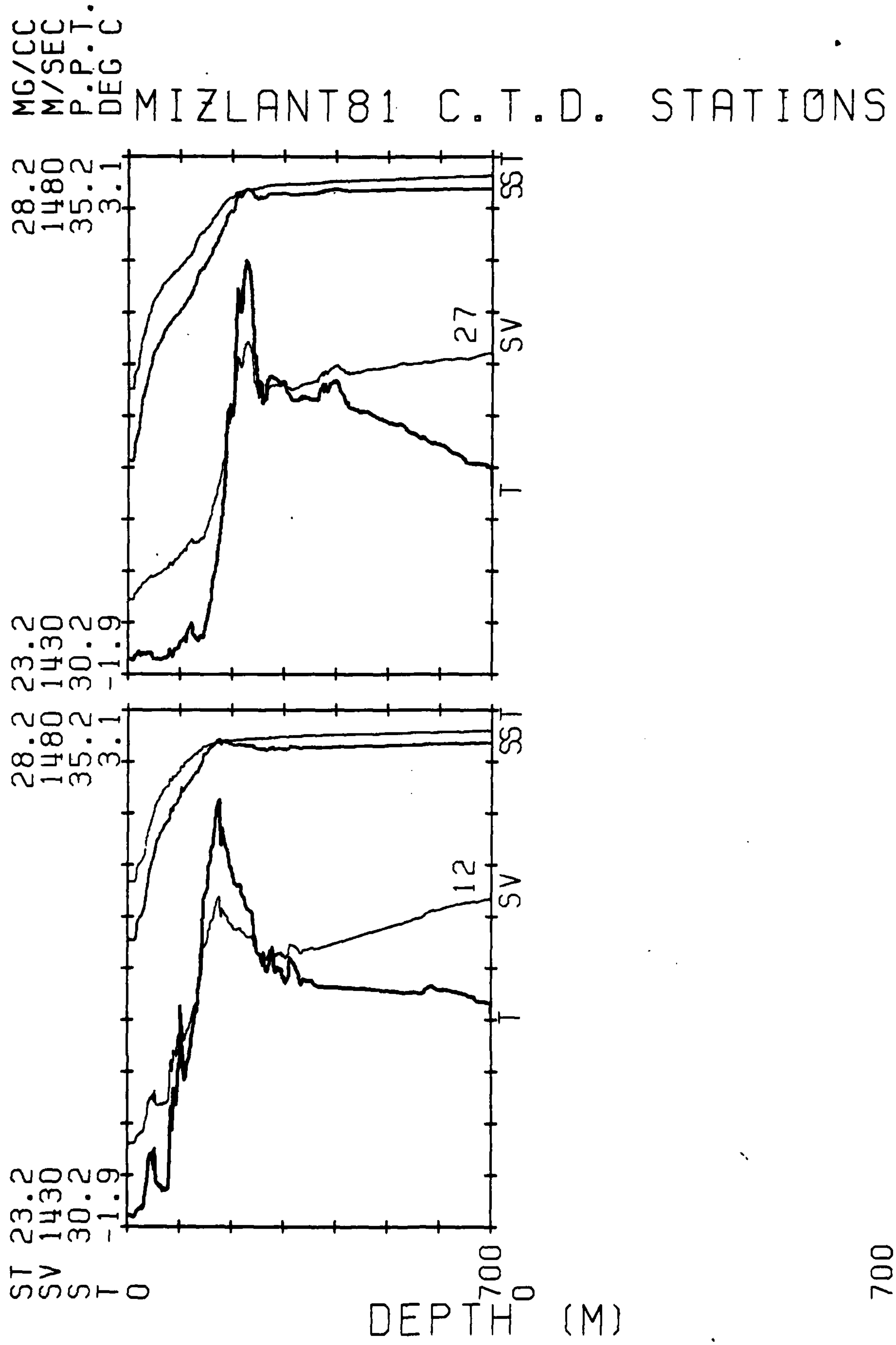

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
ST
SV
S
T
106
108
105
107
28.2 23.2
1480 1430
35.2 30.2
3.1 -1.9
ST 23.2
SV 1430
S 30.2
T -1.9
0
700
DEPTH (M)


MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
SS
SV
110
T
28.2 23.2
1480 1430
35.2 30.2
3.1 -1.9
SS
SV
112
T
SS
SV
109
T
SS
SV
111
T
ST 23.2
SV 1430
S 30.2
T -1.9
0
700
DEPTH (M)

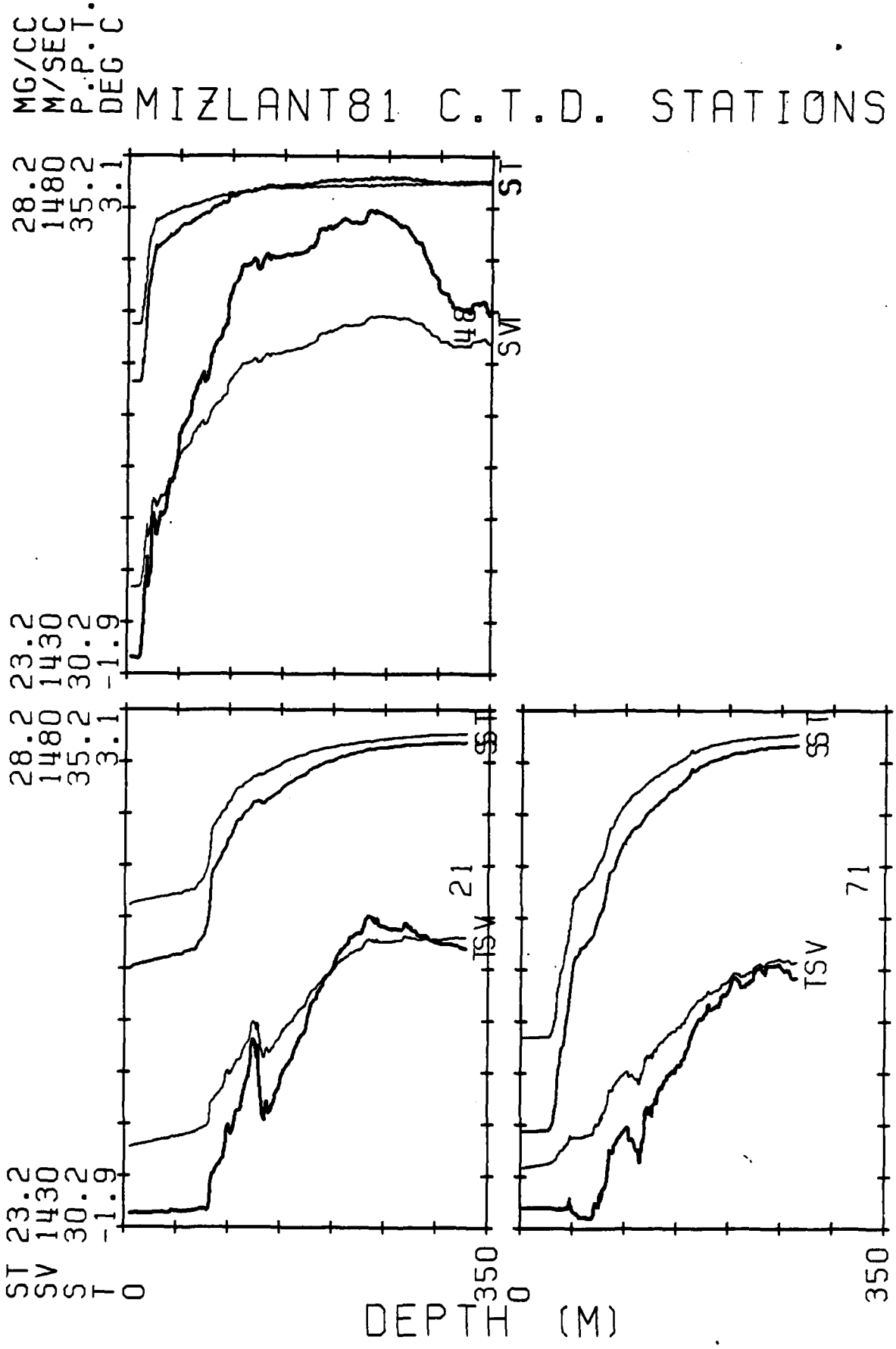

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
SS
T
SV
114
28.2 23.2
1480 1430
35.2 30.2
3.1 -1.9
SST
116
SS
SV
113
115
ST 23.2
SV 1430
S 30.2
T -1.9
0
700
DEPTH (M)

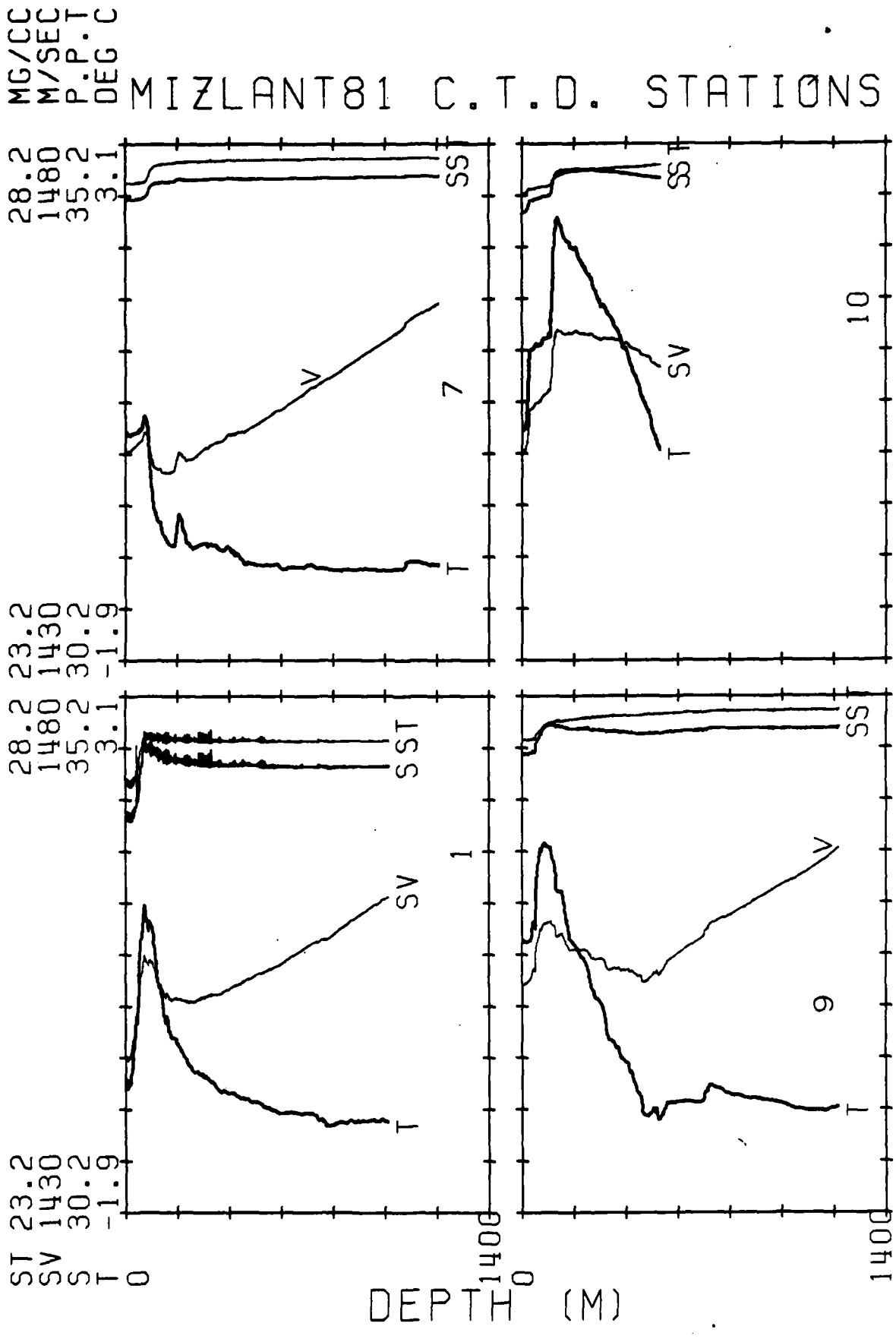

MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
ST
S
SV
T
118
120
117
119
0
700
DEPTH (M)


MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
SST
SV
122
T
28.2 23.2
1480 1430
35.2 30.2
3.1 -1.9
SST
SV
121
T
ST 23.2
SV 1430
S 30.2
T -1.9
0
700
DEPTH (M)
0
700



MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
23.2
1430
30.2
-1.9
27
12
ST
SV
S
T
0
700
DEPTH (M)


MIZLANT81 C.T.D. STATIONS
MG/CC
M/SEC
P.P.T.
DEG C
28.2
1480
35.2
3.1
ST
SV
T
S
-1.9
30.2
1430
23.2
81
21
71
TSV
0
350
DEPTH (M)


MG/CC
M/SEC
P.P.T.
DEG C
MIZLANT81 C.T.D. STATIONS
28.2
1480
35.2
3.1
SS
SV
T
7
10
1
9
23.2
1430
30.2
-1.9
SST
ST
0
1400
DEPTH (M)

INITIAL DISTRIBUTION LIST

		No. Copies
1.	Director Applied Physics Laboratory Attn: Mr. Robert E. Francois Mr. E.A. Pence Mr. G.R. Garrison Library University of Washington 1013 Northeast 40th Street Seattle, Washington 98105	 1 1 1 1
2.	Director Arctic Submarine Laboratory Code 54, Building 371 Naval Ocean Systems Center San Diego, California 92152	5
3.	Superintendent Naval Postgraduate School Attn: Library, Code 0142 Dr. R.H. Bourke, Code 68Bf Dr. R.G. Paquette, Code 68Pa Monterey, California 93943	 2 5 5
4	Mr. Beaumont M. Buck Polar Research Laboratory, Inc. 6309 Carpinteria Ave. Carpinteria, California 93103	1
5.	Chief of Naval Operations Department of the Navy Attn: NOP-02 NOP-22 NOP-964D2 NOP-095 NOP-098 Washington, District of Columbia 20350	 1 1 1 1 1
6.	Commander Submarine Squadron THREE Fleet Station Post Office San Diego, California 92132	1
7.	Commander Submarine Group FIVE Fleet Station Post Office San Diego, California 92132	1

8. Dr. John L. Newton — 2
10211 Rookwood Drive
San Diego, California 92131

9. Director — 1
Marine Physical Laboratory
Scripps Institution of Oceanography
San Diego, California 92132

10. Commanding Officer — 1
Naval Intelligence Support Center
4301 Suitland Road
Washington, District of Columbia 20390

11. Commander — 1
Space and Naval Warfare Systems Command
Department of the Navy
Washington, District of Columbia 20360

12. Director — 1
Woods Hole Oceanographic Institution
Woods Hole, Massachusetts 02543

13. Commanding Officer — 1
Naval Coastal Systems Laboratory
Panama City, Florida 32401

14. Commanding Officer — 1
Naval Submarine School
Naval Submarine Base, New London
Groton, Connecticut 06349-5700

15. Assistant Secretary of the Navy — 1
(Research and Development)
Department of the Navy
Washington, District of Columbia 20350

16. Director of Defense Research and Engineering — 1
Office of Assistant Director (Ocean Control)
The Pentagon
Washington, District of Columbia 20301

17. Commander, Naval Sea Systems Command — 1
Department of the Navy
Washington, District of Columbia 20362

18. Chief of Naval Research
Department of the Navy
Attn: Code 102-OS — 1
Code 220 — 1
Code 425 Arctic — 1
800 N. Quincy Street
Arlington, Virginia 22217

19. Fisheries-Oceanography Library — 1
Oceanography Teaching Bldg., WB-30
University of Washington
Seattle, WA 98195

20. Commanding Officer — 1
Naval Underwater Systems Center
Newport, Rhode Island 02840

21. Commander — 1
Naval Air Systems Command
Headquarters
Department of the Navy
Washington, District of Columbia 20361

22. Commander
Naval Oceanographic Office
Attn: Library Code 3330 — 1
Washington, District of Columbia 20373

23. Director — 1
Advanced Research Project Agency
1400 Wilson Boulevard
Arlington, Virginia 22209

24. Commander SECOND Fleet — 1
Fleet Post Office
New York, New York 09501

25. Commander THIRD Fleet — 1
Fleet Post Office
San Francisco, California 96601

26. Commander
Naval Surface Weapons Center
White Oak
Attn: Mr. M.M. Kleinerman — 1
Library — 1
Silver Springs, Maryland 20910

27. Officer-in-Charge — 1
New London Laboratory
Naval Underwater Systems Center
New London, Connecticut 06320

28. Commander
Submarine Development Squadron Twelve — 1
Naval Submarine Base
New London
Groton, Connecticut 06349

29. Commander
Naval Weapons Center
Attn: Library 1
China Lake, California 93555

30. Commander
Naval Electronics Laboratory Center
Attn: Library 1
271 Catalina Boulevard
San Diego, California 92152

31. Director 1
Naval Research Laboratory
Attn: Technical Information Division
Washington, District of Columbia 20375

32. Director 1
Ordnance Research Laboratory
Pennsylvania State University
State College, Pennsylvania 16801

33. Commander Submarine Force 1
U.S. Atlantic Fleet
Norfolk, Virginia 23511

34. Commander Submarine Force
U.S. Pacific Fleet 1
Attn: N-21
FPO San Francisco, CA 96860

35. Commander 1
Naval Air Development Center
Warminster, Pennsylvania 18974

36. Commander 1
Naval Ship Research and Development Center
Bethesda, Maryland 20084

37. Commandant 1
U.S. Coast Guard Headquarters
400 Seventh Street, S.W.
Washington, DC 20590

38. Commander 1
Pacific Area, U.S. Coast Guard
630 Sansome Street
San Francisco, California 94126

39. Commander 1
Atlantic Area, U.S. Coast Guard
159E, Navy Yard Annex
Washington, District of Columbia 20590

40. Commanding Officer — 1
U.S. Coast Guard Oceanographic Unit
Building 159E, Navy Yard Annex
Washington, District of Columbia 20590

41. Scientific Liaison Office — 1
Office of Naval Research
Scripps Institute of Oceanography
La Jolla, California 92037

42. SIO Library — 1
Scripps Institute of Oceanography
P.O. Box 2367
La Jolla, California 92037

43. School of Oceanography, WB-10
University of Washington
Attn: Dr. L.K. Coachman — 1
Dr. K. Aagaard — 1
Dr. S. Martin — 1
Seattle, Washington 98195

44. Library, School of Oceanography — 1
Oregon State University
Corvallis, Oregon 97331

45. CRREL
U.S. Army Corps of Engineers
Attn: Library — 1
Hanover, New Hampshire 03755-1290

46. Commanding Officer — 1
Fleet Numerical Oceanography Center
Monterey, California 93940

47. Commanding Officer — 1
Naval Environmental Prediction Research Facility
Monterey, California 93940

48. Defense Technical Information Center — 2
Cameron Station
Alexandria, Virginia 22314

49. Commander — 1
Naval Oceanography Command
NSTL Station
Bay St. Louis, Mississippi 39529

50. Commanding Officer
Naval Ocean Research and Development Activity
Attn: Technical Director — 1
Dr. J.P. Welsh, — 1
NSTL Station
Bay St. Louis, Mississippi 39529

51. Commanding Officer — 1
Naval Polar Oceanography Center, Suitland
Washington, District of Columbia 20373

52. Director — 1
Naval Oceanography Division
Naval Observatory
34th and Massachussetts Ave. NW
Washington, District of Columbia 20390

53. Commanding Officer
Naval Oceanographic Command — 1
NSTL Station
Bay St. Louis, Mississippi 39522

54. Scott Polar Research Institute
University of Cambridge
Attn: Library — 1
Sea Ice Group — 1
Cambridge, England
CB2 1ER

55. Chairman — 1
Department of Oceanography
U.S. Naval Academy
Annapolis, Maryland 21402

56. Dr. James Morison — 1
Polar Science Center
4059 Roosevelt Way, NE
Seattle, Washington 98105

57. Dr. Kenneth Hunkins — 1
Lamont-Doherty Geological Observatory
Palisades, New York 10964

58. Dr. David Paskowsky, Chief — 1
Oceanography Branch
U.S. Department of the Coast Guard
Research and Development Center
Avery Point, Connecticut 06340

59. Science Applications, Inc.
Attn: Dr. Robin Muench — 1
13400B Northrup Way
Suite 36
Bellevue, Washington 98005

60. Institute of Polar Studies
Attn: Library — 1
103 Mendenhall
125 South Oval Mall
Columbus, Ohio 43210

61. Institute of Marine Science
University of Alaska
Attn: Library
Fairbanks, Alaska 99701 — 1

62. Department of Oceanography
University of British Columbia
Attn: Library
Vancouver, B.C. Canada
V6T 1W5 — 1

63. Geophysical Institute
University of Alaska
Attn: Dr. H.J. Niebauer
Fairbanks, Alaska 99701 — 1

64. Bedford Institute of Oceanography
Attn: Library
P.O. Box 1006
Dartmouth, Nova Scotia
Canada
B2Y 4A2 — 1

65. Carol Pease
Pacific Marine Environmental Lab/NOAA
7600 Sand Point Way N.E.
Seattle, Washington 98115 — 1

66. Department of Oceanography
Dalhousie University
Halifax, Nova Scotia
Canada
B3H 4J1 — 1

67. Mr. Richard Armstrong
MIZEX Data Manager
National Snow and Ice Data Center
Cooperative Institute for Research
in Environmental Sciences
Boulder, Colorado 80309 — 2

68. Research Administration
Code 012A
Naval Postgraduate School
Monterey, CA 93943 — 1

END

FILMED

11-85

DTIC